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REVIEW UNDER THE ENVIRONMENTAL ASSESSMENT ACT

prepared by Ministries and
Agencies of the Province of Ontario

PETRO-SUN/SNC RESOURCE RECOVERY FACILITY IN THE
REGIONAL MUNICIPALITY OF PEEL
EA FILE NO. PR-BR-02

Submitted by
Petro-Sun International Inc./SNC Consortium

Review Prepared
Pursuant to subsection 7(1) of the
Environmental Assessment Act

Province of Ontario
September, 1987



Province
of
Ontario



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20DB-2974

PREFACE

The Petro-Sun/SNC undertaking is located in the City of Brampton, the Regional Municipality of Peel. Petro-Sun International/SNC is the first private sector proponent in the energy from waste business to be subject to the Environmental Assessment Act.

The Regional Municipality of Peel Waste Management Master Plan Update, currently under preparation, has identified waste reduction through processing wastes as one component of its preferred waste management system. In the December 1986 Stage 3 Preliminary Report, the Region of Peel stated that while it supports this facility in principle, it is not a co-proponent in applying for approval.

On March 13, 1987, the Honourable Jim Bradley, Minister of the Environment, announced a Government policy that all public and private energy from waste (EFW) projects and waste incineration facilities that handle greater than 100 tonnes per day were subject to the Environmental Assessment Act. In making this statement, the Minister recognized that the private sector faces certain constraints in trying to meet the requirements of the Act in the same manner as public sector proponents. The Minister indicated that in administering the Act for private sector EFW proposals these limitations will be taken into consideration. A copy of the Minister's statement can be found in Appendix 5 of this Review.

Of particular significance to this submission is the consideration of alternatives. The Act, as administered, requires that a reasonable range of alternatives be considered before an undertaking is selected. In this instance, the proponent is requesting approval to implement one of the alternatives identified in the Regional Municipality of Peel Waste Management Master Plan. The proponent has indicated that it is in the business of

(ii)

designing and marketing energy from waste technology and considers reasonable alternatives to include:

"... only those alternatives which are reasonably within their business mandate or market sector".
(p. 1, addendum)

This approach is consistent with the Minister of the Environment's statement on the application of the EA Act to private sector energy from waste proponents. As a result, the approach taken by the proponent is acceptable to the Ministry of the Environment.

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PART 1 - INTRODUCTION

1.1 Explanation of Terms

CHA: refers to the Consolidated Hearings Act

EA Act: refers to the Environmental Assessment Act

EA Branch: the Environmental Assessment Branch of MOE

EAB: the Environmental Assessment Board

EFW: energy from waste facility

MCC: the Ministry of Citizenship and Culture

MNR: the Ministry of Natural Resources

MOE: the Ministry of the Environment

Proponent: the person, agency or government ministry who carries out or proposes to carry out an undertaking, or is the owner or person having charge, management or control of an undertaking. In this case the proponent is the Petro-Sun International Inc./SNC Consortium

PSC pre-submission consultation

PSI/SNC: Petro-Sun International Inc./SNC Consortium

RDF refuse derived fuel for incinerators

The Act: refers to the Environmental Assessment Act, unless otherwise specified

The Consortium: the Petro-Sun International/SNC Consortium

The EA: the Environmental Assessment documents

The Minister: refers to the Minister of the Environment, unless otherwise specified

The Region: the Regional Municipality of Peel

The Reviewers: refers to the Ministries and Agencies that took part in the review of the EA

1.2 Function of the Review

The Review

The Minister arranges for a Government Review to be prepared when an environmental assessment is submitted. The Government Review addresses the quality of the environmental assessment. It provides a balanced evaluation from the perspective of government ministries and agencies.

Decisions Under the Environmental Assessment Act

Two decisions must be made under the Act.

- ° First, the Minister of the Environment must decide whether the environmental assessment is acceptable as a basis on which to make a decision on whether to approve the proposed undertaking.
- ° Second, the Minister, together with Cabinet, must decide whether the undertaking should be approved, approved with conditions, or rejected.

Hearings

If members of the public or the proponent request a hearing the Minister will decide if a hearing is necessary. The Minister will normally agree to such a request and refer these matters to the Environmental Assessment Board unless the Minister considers the request to be frivolous, unnecessary, or causing undue delay.

When there is a hearing, the Environmental Assessment Board or a Joint Board, constituted under the Consolidated Hearings Act, 1981, may make both decisions, or the decision on approval, if the Minister has already accepted the EA.

The Review is one input into the Minister's or the Board's decision.

Participants

The main participants in the preparation of the Government Review include:

- The Environmental Assessment Branch of the Ministry of the Environment
- The Ministry of the Environment technical staff
- Provincial Ministries and Agencies
- Selected Federal Departments and Agencies.

The Environmental Assessment Branch

The Environmental Assessment Branch coordinates the production of the Review. The Review identifies, evaluates and weighs both the strengths and weaknesses of the environmental assessment.

The Environmental Assessment Branch as a direct contributor to the Review evaluates whether the environmental assessment contains the components of an environmental assessment which are required by subsection 5(3) of the Environmental Assessment Act. These include:

- Scope of the Environment - the range of components of the environment considered at each stage of planning, and

- ° Method of Analysis - the process employed to select an undertaking from the alternatives.

Provincial Ministries and Agencies

Those ministries and agencies participating in the Review are called Reviewers. They evaluate whether the quality of the information described in the components of the EA is satisfactory.

Reviewers determine whether the data, analysis, and conclusions are sound, based on their respective mandates. Reviewers evaluate the level of detail in which the environment to be affected, the environmental affects and the means of mitigation/enhancement of each alternative and their net effects were considered, as well as the environmental advantages and disadvantages of each. In addition, Reviewers assess whether they are satisfied with the range of alternatives which was investigated by the proponent. The Reviewers also advise as to whether or not they are satisfied with the weight which was given to their policy interests.

If Reviewers find significant weaknesses in the environmental assessment, they may advise on changes to the environmental assessment and/or the need for research to obtain a satisfactory environmental assessment.

Review Conclusions

The Environmental Assessment Branch coordinates a Review for the Minister in accordance with section 7 of the EA Act. The Branch in concert with the Reviewers, uses two criteria to reach a conclusion on how well the environmental assessment meets subsection 5(3) of the EA Act:

1. Are the components of the EA present, (scope of the environment and method of analysis).

2. Is the technical quality and level of detail of these components satisfactory. Is there an appropriate range of alternatives.

If the EA Branch is satisfied that the components of an environmental assessment are present and Reviewers are satisfied with the quality of the information base, then the Branch concludes that the EA meets the requirements of subsection 5(3). If the environmental assessment is deficient in meeting either criterion, the EA Branch will conclude that the environmental assessment does not meet the requirements of subsection 5(3).

1.3 Review Format

Part 1 of the Review provides background information on the Environmental Assessment Act and the Review.

Part 2 of the Review provides information on the requirements of the Environmental Assessment Act.

Part 3 provides a summary description of the approval that is being sought. This part also contains an evaluation of whether the EA contains the required components as stipulated in subsection 5(3) of the Act.

This discussion follows the successive stages of the proponent's planning process.

Part 4 provides an evaluation by government ministries and agencies of the technical quality and completeness of the information contained in the Environmental Assessment, and how well the EA addresses reviewers' policy interests.

Part 5 contains the conclusions of the Environmental Assessment Branch on how well the Environmental Assessment meets subsection 5(3) and conclusions with respect to the Environmental Assessment and the undertaking.

Appendix 1 contains the review questions and the reviewers' comments on the EA.

Appendix 2 contains the proponent's summary (Form 1) of the Environmental Assessment including a location map.

Appendix 3 includes the proponent's request for designation under the EA Act and a copy of the Designating Regulation.

Appendix 4 contains Figure 1 from the Addendum - Petro-Sun Inc./SNC Planning Process Flow Chart.

Appendix 5 contains the statement of the Minister of the Environment on the application of the EA Act to private sector energy from waste proponents.

Appendix 6 contains a map indicating the preferred site for the facility.

The Review is meant to be of assistance to the Minister, the public and interested parties as a summary of the main features of the EA in terms of subsection 5(3) requirements and reviewers' comments.

1.4 List of Reviewers

Government ministries and agencies participating in this Review, and the corresponding contact person for each, include the following:

CN Rail	Mr. R.J. Spence
Environment Canada	Ms Goden
Ministry of Citizenship and Culture	Mr. C. Thorpe

Ministry of Energy	Mr. J. Lang
Ministry of the Environment	Mr. B. Balfour
Ministry of Government Services	Mr. B. Crowe
Ministry of Health	Dr. B.J. Blake
Ministry of Housing	Mr. W. Wilson
Ministry of Industry and Trade	Mr. J. Delaney
Ministry of Labour	Mr. A.D. Heath
Ministry of Municipal Affairs	Mr. R. Kennedy
Ministry of Natural Resources	Ms M. Fordyce
Ministry of the Solicitor General	Ms Lynn Ceglar
Ministry of the Solicitor General - OPP	Supt. C.J. Cole
Ministry of the Solicitor General Fire Marshall	Mr. R.R. Phillippe
Ministry of Transportation and Communications	Mr. R. Hodgins
The Regional Municipality of Peel Health Unit	Dr. P. Cole
Ontario Hydro	Mr. R. Brown

The Coordinator of the Review and contributor for the Environmental Assessment Branch, is Ms Peggy Farnsworth.
For further information regarding the Review, please contact her at the Ministry of the Environment, Environmental Assessment Branch, 7th Floor, 135 St. Clair Avenue West, Toronto, Ontario, M4V 1P5, telephone: (416) 323-4596.

1.5 Requirement for Environmental Assessment and Submission Format

On January 8, 1987, the Petro-Sun/SNC Consortium requested that the Minister of the Environment designate the proposed "Resource Recovery Project" in Brampton under the Environmental Assessment Act.

On April 9, 1987, the proposed Petro-Sun Inc./SNC Resource Recovery Facility was designated by Regulation under the Environmental Assessment Act. (See Appendix 3 for a copy of Regulation.)

Therefore, section 5 of the Act requires the proponent to prepare an environmental assessment for the proposed undertaking.

On January 30, 1987, the proponent submitted an Environmental Assessment to the Minister of the Environment for approval under the Act. The proponent's Environmental Assessment submission consisted of two documents:

"Petro-Sun/SNC Resource Recovery Facility in the Regional Municipality of Peel"

- a) Environmental Assessment, January, 1987
- b) Appendices

An addendum to the EA was submitted to the Minister of The Environment on July 7, 1987. This addendum was reviewed as part of the EA.

An additional document "Executive Summary" was made available to the Ministry, however, this document was not part of the environmental assessment submission.

1.6 Public Record Locations

The Public Record for this Environmental Assessment is available for public inspection during normal business hours at:

Ministry of the Environment
Environmental Assessment Branch
135 St. Clair Ave. West, 7th Floor
Toronto, Ontario
M4V 1P5
416-323-4596

Additional files containing the Environmental Assessment, the addendum, and the Review and notices are available at the following regional and district offices:

Ministry of the Environment
Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
416-424-3000

Ministry of the Environment
Halton-Peel District Office
1235 Trafalgar Road
Suite 401
Oakville, Ontario
L6H 3P1
416-844-5747

In addition, **photocopies** of the EA and this Review are available from:

Printfast
75 Charles St. E.,
Toronto, Ontario
M4Y 2T3
Telephone: 967-4544 (quote EA File Number and document name when ordering)

and **microfiche** copies are available from:

Ministry of Government Services,
Publications Service,
880 Bay Street, 5th Floor,
Toronto, Ontario
M7A 1N8
(416) 965-6015
(quote the microfiche code number when ordering)
(Microfiche code numbers are available in "EA Update")

PART 2 - ENVIRONMENTAL ASSESSMENT ACT REQUIREMENTS

2.1 Scope of the Inquiry

The definition of "environment" in clause 1(c) of the Environmental Assessment Act outlines the scope of the analysis required in an Environmental Assessment. The EA Branch interprets the Act to require that each aspect of the definition of environment be considered at each stage of the planning process which leads to the selection of the undertaking.

2.2 Method of Analysis

The Environmental Assessment documents the planning process carried out by the proponent to select an undertaking. The method of analysis to be used to select the undertaking is suggested in subsection 5(3) of the EA Act. It consists of identifying, evaluating, comparing and as appropriate, successively eliminating alternatives, by weighing and trading off the relative net environmental effects of each, to select the preferred alternative (the undertaking), which is put forward for approval by the proponent.

2.3 Level of Detail

Within the context of the scope of inquiry required by the Act, the level of detail in which each aspect of the definition of environment is considered is a matter of judgment on the proponent's part. The proponent's discretion in this matter is not unrestrained. It can be challenged by any interested person, and the proponent may be called upon to explain more fully the investigation of any alternative or conclusion reached.

The level of detail may vary according to a number of factors such as the nature and severity of anticipated environmental effects, the stage of the study (i.e., the narrowing of alternatives to be considered), or the importance assigned to the effects which were considered.

Discussions on level of detail matters involving the public, government reviewers and the proponent should take place during pre-submission consultation (PSC) to allow the proponent sufficient opportunity to prepare a response to the concerns raised, or carry out additional investigation.

2.4 Alternatives to be Considered

The Environmental Assessment Branch's position on the identification of alternatives to be considered in the Environmental Assessment is that:

- The proponent can decide which alternatives to examine in the Environmental Assessment within the context of the requirements of the EA Act, which stipulates that "alternatives to" as well as the "alternative methods of carrying out the undertaking" must be examined where reasonably available.
- The proponent is responsible for ensuring that the opportunity for the public and reviewers to raise alternatives is provided at a time in the proponent's planning process when decisions on and commitments to alternatives are reversible. Both the public and the reviewers are responsible for ensuring that their suggestions for alternatives are made in a timely fashion to the proponent.

As is the case for level of detail in an environmental assessment, the proponent's selection of a range of alternatives can be challenged by any interested person, and the proponent may be asked to justify why certain alternatives were or were not examined. Discussions on the range of alternatives involving the public, government reviewers and the proponent should take place throughout PSC. Early identification in the planning process of additional alternatives to be studied gives the proponent sufficient opportunity to address concerns or carry out additional investigation prior to the formal submission of the EA.

PART 3 - ANALYSIS OF THE ENVIRONMENTAL ASSESSMENT

3.0 Summary Description of the Approval Being Sought

The Petro-Sun/SNC Consortium, as designated, has submitted an EA for the proposed undertaking for approval under the Environmental Assessment Act.

The Consortium requires Certificates of Approval under Part V and Section 8 of the Environmental Protection Act.

On June 22, 1987 the lawyer representing the proponent advised the EA Branch that it does not intend to have the application for a Certificate of Approval pursuant to Section 8 of the Environmental Protection Act dealt with at the Consolidated Hearing.

In a situation where an undertaking is subject to a hearing by the Environmental Assessment Board under both the Environmental Assessment and Environmental Protection Acts, and by Ontario Municipal Board under the Planning Act, the proponent may elect or either of the two Boards may order, that the proponent give notice under the Consolidated Hearings Act, 1981 to amalgamate the hearings into a single hearing before a Joint Board.

The proponent has given notice (January 15, 1987) to the Hearings Registrar, Consolidated Hearings Act, 1981 to schedule a hearing to address the following statutes:

- Environmental Assessment Act
- Environmental Protection Act
- Planning Act
- Ontario Municipal Board Act

The Notice of Preliminary Meeting (July 27, 1987) also refers to the matter of a possible application for an amendment to the Parkway Belt West Plan pursuant to the Parkway Belt Planning and Development Act and the Ontario Planning and Development Act.

3.1 The Undertaking

Clause 5(3)(b)(ii) of the Environmental Assessment Act requires that the EA contain a description of the undertaking. The undertaking is the preferred alternative selected by the proponent after the evaluation of alternatives is complete.

In Section 1.1.1 of the EA, Petro-Sun/SNC summarizes the undertaking as follows:

"The Petro-Sun/SNC resource recovery project will involve the generation and delivery of steam energy to Domtar Ltd.'s packaging plant (located on the east side of Bramalea Road, north of Pearson International Airport), and electric energy to Ontario Hydro." (p. 1.3)

Petro-Sun/SNC indicates that the electrical energy will be provided to the Brampton Transformer Station.

"Energy will be produced through the incineration of 364 tonnes (400 tons) per day of municipal solid waste (non-hazardous waste) mainly originating from the Regional Municipality of Peel."

Approval is being sought for the construction and operation of the resource recovery facility." (p. 1.3)

Two potential sites were identified for the facility:

Site 2 - Mississauga East

"... a wedge of undeveloped land sandwiched between the Parkway Belt West (Ontario Hydro Transmission Corridor) to the north and the Domtar property to the south." (p. 3.3)

Site 4 - Brampton West

"... west of Bramalea Road and south of the proposed Highway 407." (p. 3.5)

Both sites are located off Bramalea Road, south of Steeles Avenue.

In an August 4, 1987 letter to the Honourable J. Bradley, Minister of the Environment from Mr. R. Webb, Solicitor for the proponent, indicated that approval is being sought for the facility to be located on Site 4 only (shown on Figure 3.8 of the EA which can be found in Appendix 6 of this Review) is the proposed location for the facility. A copy of this letter may be found in Appendix 2 of this Review.

Further detail on plant siting and building may be found in Sections 1.1 and 3 of the EA.

Additional information on the undertaking may also be found in Chapter 3 of the Addendum. The proponent explains the purpose of this information in the Addendum as follows:

"At the various public meetings that have been held since the EA report was submitted there have been a number of recurring questions concerning how the plant will be operated and how potential environmental effects will be minimized. This Chapter will address the proposal with additional insight into the operational aspects of the plant." (p. 16, Addendum)

3.2 The Purpose of the Undertaking

Clause 5(3)(a) of the EA Act requires a description of the purpose of the undertaking.

The statement of purpose triggers the proponent's search for and evaluation of alternatives. At the outset of the study, the description of the purpose should be broad enough to ensure that all reasonable courses of action are

considered as alternatives. This purpose may be changed or refined during the study process which culminates in the selection of a preferred alternative (the undertaking). The purpose of the undertaking, reached near the end of the planning process, may be more specific and relate more directly to the undertaking than does the initial purpose.

In Section 1.1 of the EA, the proponent states that:

"The purpose of the undertaking is first and foremost an energy venture - Petro-Sun International Inc./SNC Consortium has identified a private sector business opportunity to produce and market steam and electrical energy at a cost below revenues." (p. 1.1)

Petro-Sun states that the indication of an initial purpose was a key element of the planning methodology for both the Consortium and the waste management master planning by the Regional Municipality of Peel. The proponent goes on to explain that:

"Both planning processes were iterative in nature - the purposes or ends intended to be achieved were periodically reviewed in light of the knowledge which was being gained during the evaluation of the alternatives available to address these purposes. The process of refining the definition of the purposes ensured that the full range of alternatives which warranted consideration were evaluated."

(p. 1.2)

The EA contains a clear statement of the purpose of the undertaking. On the basis of the information provided in the EA, the purpose appears to have been used appropriately in the planning process.

3.3 The Proponent's Planning Process

3.3.1 Pre-Submission Consultation

The proponent's public consultation program is described in Section 4 of the EA. The objectives of the program are presented in Section 4.1 with the key elements identified in Section 4.2 as follows:

- "... establishing the position of Communication Officer to organize and direct the public consultation program, to manage the planning process on a day-to-day basis;
- ° circulating for review and comment background information, working papers and minutes of weekly meetings; a mailing list has been established to assist in this activity;
- ° inviting interested members of the public and area media to attend weekly planning meetings; these meetings were held on a regular basis each week, and were open to the public; and
- ° organizing open houses and meetings with the public to discuss the proposal at regular intervals." (p. 4.2)

Summaries of public participation meetings are presented in Section 4.4. This is followed in Section 4.5 by the presentation of a "... cross-section of some of the questions and answers which have been raised during the meetings in energy from waste". (p. 4.6)

The concerns raised included:

- treatment efficiency
- human health
- plant expansion
- direction of winds and effect of emissions
- housing values
- acceptable waste
- traffic
- garbage trucks
- industrial workers
- lead in stack emissions
- plant location
- plant shut-down conditions
- testing
- risk assessment
- phosgene
- odours
- tourism
- pollution in Malton
- guarantees
- electricity only

Details on the above may be found on pages 4.6 to 4.18 of the EA.

A summary of the letters from citizens and the proponent's responses is provided at the end of Section 4.

In Chapter 4 of the addendum, the proponent states that:

"Throughout the planning stages of this project, the proponent has attempted to elicit public input in order to ensure that all concerns have been raised and addressed. In fact, this Addendum Report reflects an attempt by the proponent to clarify the issues which have been raised since the submission of the EA Report on January 1987." (p 26, addendum).

A summary of the questions and answers from April 21 and 22, 1987 public meetings sponsored by the Region of Peel are provided in Chapter 4 of the addendum. The proponent also notes that transcripts of these meetings are available to the public.

Appendix 10 to the EA relates to government reviewer involvement. The proponent indicates that information was provided to reviewers in the early environmental planning stage and again in June, 1986 and then comments were requested. Copies of the responses received and summaries of telephone interviews with reviewers in September, 1985 are provided in Appendix 10 to the EA.

On the basis of the information provided in the EA and the addendum the proponent appears to have made a genuine effort to inform the public and to solicit their views and opinions.

3.3.2 Scope of the Environment

Clause 1(c) of the EA Act outlines the "scope of the inquiry" required in an EA. This includes consideration of the natural, social, cultural, technical and economic components of the environment.

Chapter 5 of the EA provides a description of the existing environment in terms of the biophysical environment, socio-economic environment, traffic and noise, heritage resources, existing air quality and zoning by-laws for the study area. Information is provided in the July, 1987 addendum on the land use compatibility component.

The criteria used to evaluate alternatives considered in selecting the undertaking are discussed in Section 2.2 of the July, 1987 Addendum to the EA. (These criteria are listed in Section 3.5 of this Review.)

These alternatives and their evaluation are discussed in Section 2 of the EA and Chapter 2 of the addendum.

Tables 2.1 through 2.5 in the addendum document the consideration of the alternatives considered at this stage in the planning process.

The evaluation of these alternatives covers social, cultural, natural and economic (technical) factors. The information provided in the EA indicates that the proponent considered the full scope of environment required by the Act in considering project alternatives (the alternatives considered in determining the type of facility as opposed to the preferred site for the facility).

Section 6 of the EA provides predictions of potential environmental effects, used to determine the effect criteria scoring. These effects included the effects of construction, plant operation, plant failure, spillage and plant closure. Information is also provided on air quality effects, traffic and noise, potential effects on the biophysical environment, land uses, heritage resources and potential socio-economic effects. Further information on potential socio-economic effects is provided in Chapter 6.7 of the July, 1987 addendum.

The evaluation of site alternatives is discussed in Sections 2.3.1, 5, 6 and 8 of the EA and Chapters 5 and 6 of the addendum. Sites were ranked for 21 environmental parameters covering human health and safety, the socio-economic environment, the natural environment and financial considerations, both before and after mitigation was applied.

The information which formed the basis of the proponent's planning process indicates that Petro-Sun Inc./SNC considered the full scope of the environment required by the Act. The level of detail with which the proponent has considered each aspect of the environment is a matter of judgement on the proponent's part which can be challenged by the public and reviewers.

3.3.3 Organization of Environmental Information

The Environmental Assessment Act describes the required contents of an environmental assessment. This prescribed content suggests a method of analysis to be used by proponents in the selection of an undertaking to be put forward for approval. The method involves identifying, evaluating and as appropriate, successively eliminating alternatives, by weighing and trading off the net environmental effects of each alternative to select a preferred alternative. This approach results in the development of an undertaking which has a thorough and rational justification for approval.

The key elements of the proponent's project planning process (and the Regional Municipality of Peel's waste management master planning process) are summarized in Section 1.1 of the EA and include:

- "° identification of an initial purpose (a potential energy business opportunity for the Consortium, a potential solution to a waste management problem for the Region);
- ° the alternative courses of action which were reasonably available to achieve the purposes were identified and evaluated;

- ° the evaluation process involved a consideration of the advantages and disadvantages of the net effects the alternatives would have upon the natural, social, cultural and economic components of the environment; and
- ° a comparative evaluation of these advantages and disadvantages led to a winnowing down of the alternatives, until the preferred course of action - the undertaking was identified." (p. 1.2)

The proponent indicates that Figure 2 in the EA provides a summary of the Petro-Sun/SNC Resource Recovery facility planning process and how it was influenced by the Region of Peel's Waste Management Master Plan Update process.

Figure 1.1 in the addendum (see Appendix 3 of the Review) illustrates the Petrosun/SNC planning process and where in the EA and addendum information on each stage can be found. This figure is of great assistance to the reader in tracing the planning process.

Additional information on the proponent's planning process is found in the July 1987 addendum to the EA.

3.3.4 Description of the Affected Environment

Section 5 of the EA provides a description of the affected environment for the facility and the four sites which were considered in the evaluation. The proponent indicates that five general approaches were used to:

"... collect background information necessary to determine the environmental impacts of the proposed resource recovery plant ..." (p. 5.1)

These approaches included:

- review of existing data;
- results of NITEP studies;
- contact with local information sources (including provincial ministries and agencies);

- site surveys;
- examination of existing and potential air quality and noise.

Information is provided in this section of the EA (and for some components of the environment in the appendices and addendum as well) on the:

- biophysical environment (Section 5.3);
- socio-economic environment (Section 5.4);
- traffic and noise (Section 5.5 and Appendix 3);
- heritage resources (Section 5.6);
- existing air quality (Section 5.7); and
- zoning bylaws for the study area (Section 5.8).

Information is provided in Chapter 5 of the addendum on land use compatibility. For each component of the environment, the proponent discusses the methodology used for data collection.

3.3.5 Evaluation of Project Alternatives

Information on the evaluation of alternatives, other than site alternatives is presented in Section 2 of the EA and Chapter 2 of the addendum.

As is illustrated by Figure 1.1 in the addendum, the proponent considered:

- (a) options for energy production
 - steam only
 - cogeneration
 - electricity only
- (b) plant size and steam customer
 - less than peak customer need
 - to match peak customer need
 - more than customer need

(c) incineration technology

- modular
- mass burn (water wall)
- RDF (new)
- RDF (retrofit)

(d) Fuel Pretreatment

- National Recovery Technologies (NRT) system
- no treatment

(e) Business, technical, economic feasibility decision

- go
- no go

Section 2 in the EA and Chapter 4 in the addendum also discuss a number of "process alternatives" which the proponent indicates were compared with the goal of:

- "- minimizing the environmental effects of the project,
- selecting the best technology in the opinion of the project team, and
- minimizing both the capital and operating cost of the facility." (p. 3, addendum)

The comparison of these alternatives provides useful information on the range of options considered by the proponent in planning and the advantages of each. With the exception of the incineration alternatives which are further evaluated elsewhere in the EA submission, these alternatives are not considered to be alternatives to the undertaking or alternative methods of carrying out the undertaking as those terms are used in subsection 5(3) of the EA Act. Rather they assist in the evaluation of the undertaking and the description of the reasons for choosing the final form of the undertaking.

Evaluation Criteria

Chapter 2.2 of the addendum provides a discussion of the criteria used in the evaluation of alternatives considered in selecting the undertaking. The selection of a site for the facility, as opposed to the type of facility, is discussed in Sections 2.3.1, 5, 6, and 8 of the EA and Chapter 5 and 6 of the addendum and Section 3.3.7 of this Review.

Social/cultural criteria are discussed in Chapter 2.2.1 of this addendum, included:

- perception of change and fear of the effects of the project;
- possible siting conflicts;
- visual aesthetics;
- existing land uses;
- potential increases in traffic and access problems;
- nuisance effects from the plant;
- potential effects on worker and health safety;
- potential displacement of agricultural land/farms.

The natural environment criteria discussed in Chapter 2.2.2 of the addendum included:

- air;
- water;
- displacing natural features;
- noise effects on the natural environment.

The economic criteria presented in Section 2.2.3 of the EA included:

- reduced tipping fee;
- additional jobs;

- prolonging the use of the landfill site;
- recycling;
- capital costs;
- replacing fossil fuel;
- use of all energy;
- conflicts with natural resources;
- restricted location;
- trucking costs;
- ash quality;
- economics of scale.

(a) Options for Energy Production

The evaluation of the net effects and advantages and disadvantages of these alternatives is documented on Table 2.1 in the addendum. Further information on these alternatives is provided in Chapter 2.3.1 of the addendum and for the "sales of electricity only" and "steam only" alternatives, in Sections 2.2.4 and 2.2.5 of the EA.

The cogeneration alternative was initially selected as the preferred option. In the July, 1987 addendum the proponent states that:

"... the favourable increase in rates now makes "electricity only" the best choice for the proponent and for the Region, (Ontario Hydro raised their rates in January)" (p. 10, addendum)

(b) Plant Size and Steam Customer

Table 2.2 in the addendum provides the evaluation of these alternatives. Further information may be found in Chapter 2.3.2 of the addendum. The preferred alternative was identified as a 400 tpd facility at Domtar.

The proponent indicates that:

"The 400 tpd facility at Domtar appeared to offer the best economic advantages. It is located at the waste generator centroid of the northern part of the Region thereby minimizing waste haul distances. There was land available around the site and several alternatives were possible. The size of the plant would achieve 50% of the reduction in waste that the Region desired and the plant offered the lowest cost per tonne. This alternative offered the greatest flexibility since the steam customer could take all of the steam the plant could generate and the larger plant would not have a steam customer capable of providing it with the same potential to minimize energy sales." (p. 11 - Addendum)

(c) Incineration Technology

The alternative incineration technologies considered by the proponent are discussed in Sections 2.3.2.1 and 2.3.2.2 of the EA and Chapter 2.3.3 of the addendum. The evaluation of these alternatives is presented on Table 2.3 in the addendum.

The proponent indicates the effects were very similar between the technologies and that as a result:

"the evaluation was again resolved on economic issues, with the modular system being competitive with the European system and, as it was the proponent's technology, became the preferred alternative." (p. 11, addendum)

(d) Fuel Pretreatment

Table 2.4 in the addendum documents the proponent's comparison of this alternative against the "mass burning only" alternative. Further information on this alternative is provided in Section 3.4.2 of the EA and Chapter 2.3.4 of the addendum:

"The fuel enhancement system will add cost to the project but it will also provide economic benefits with potentially recycled material. The fuel

enhancement also provides reduction on emission potential and improves ash quality, and both issues are related to the natural environment. It will reduce pressure on the landfill site, illustrate the benefits of recycling to the public thereby providing positive social effects. On the whole, it was considered that this addition to the basic plant configuration would be beneficial." (p. 12, addendum)

(e) Business, Technical, Economic Feasibility Decision
(Project Implementation Decision)

At this stage in the process, the proponent considered whether the project should proceed. The comparison of the 'no go' alternative to project implementation is documented on Table 2.5 in the addendum. The results of this comparison are summarized in Chapter 2.3.5 of the addendum. Further information on the no go option is also provided in Section 2.2.1 of the EA.

The proponent concluded that:

"Economically the project provides many advantages and is considered to provide more positives for the Region than the negatives induced by the environmental effects outlined above." (p. 13, addendum)

3.3.6 Predictions of Potential Environmental Effects

Section 6 of the EA discusses the potential environmental effects of the facility and the sites which were considered.

In the introduction to the section, the proponent identifies a number of the situations which could produce effects and indicates that the project:

"... can also provide environmental benefits through a reduction of mass to solid landfill sites and an attendant reduction of potential problems with leachates which may affect both surface and groundwater systems, as well as the protection of valuable land resources." (p. 6.1)

Sections 6.1 to 6.7 of the EA describe the potential effects on the environment.

Section 6.1.1 deals with construction effects, primarily dust and noise. Section 6.1.2 discusses plant operation. The proponent indicates that these effects are primarily positive and notes that routine plant maintenance will not result in any substantial environmental effects.

The potential effects resulting from plant failure are discussed in Section 6.1.3.

Section 6.1.4 of the EA deals with spillage and Section 6.1.5 with plant closure.

Section 6.2 deals with potential air quality effects, including the models used to predict the effects and the results of the application of the models. A discussion of dioxins and furans is provided in Section 6.2.4. Appendix 6 of the EA is a "Discussion of Pending Changes to Regulation 308 relative to all Quality Modelling and Details on Site-Specific Model results". The Cantox Report on Dioxins and Furans is in Appendix 7 of the EA and is discussed on page 54 of the addendum.

Appendix 9 contains the Ontario Ministry of the Environment's approach to setting air quality standards.

Section 6.3 discusses traffic and noise with details of a noise impact assessment conducted for the proponent presented in Appendix 3 of the EA.

Potential effects on the biophysical environment are presented in Section 6.4 and potential effects on land uses in Section 6.5.

Section 6.6 deals with potential effects on heritage resources.

Potential social environmental effects are discussed in Section 6.7 of the EA with additional information provided in Chapter 6.7 of the addendum.

3.3.7 Evaluation of Site Alternatives

The rationale for the selection of Domtar as the major steam client for the facility is presented in Chapter 1 of the Addendum. The proponent indicates that:

"Recognizing that there were some economic advantages to having a modular EFW plant of approximately 364 tonnes per day (tpd), Petro-Sun/SNC reviewed the energy users and waste generation situation in the Region. Two major waste generation areas were identified in the Region; the Caledon/Brampton centroid and the South Mississauga waste centroid. The Region of Peel commissioned previously a survey of the major energy users in the Region. This study identified the Domtar Plant as having a potential steam usage that would match the potential generating capacity of a plant this size." (p. 2 Addendum)

Petro-Sun/SNC explains that Domtar was selected after the situation was discussed with them and they indicated that they were willing to consider an agreement. The rationale used in site identification is also discussed in Chapter 1 of the Addendum.

In evaluating alternative sites, the proponent ranked sites both before mitigation (documented in Section 6.8 of the EA and 6.8.2 of the addendum) and after mitigation (Section 8 of the EA and material relating to Table 8.1 in the addendum).

While Section 7 of the EA details the proponent's mitigation and monitoring commitments, the proponent indicates that the 'pre-mitigation' environmental effects used to rank sites at this stage:

"... already incorporate many mitigation measures, such as filter fabric and gas conditioning for air pollution control, which are felt to be integral components of the facility design." (p. 6.39)

The methodology used to carry out the comparative ranking of sites both before and after mitigation is discussed in Section 6.8.2 of the EA.

The methodology involves assigning a 'concern weighting' to each of 21 environmental parameters and multiplying this weighting against 'effect criteria scoring'.

The proponent indicates that literature, past studies and the experience of the study team as well as public and reviewer input was used to develop the 'concern weightings' and notes that:

"The concern weighting portion of Table 6.10 represents an approach to incorporating public and government concerns into the site ranking. The concern weighting (10 for high to 1 for negligible) was based on a review of the transcripts of public meetings and letters from the public (discussed in Section 4 of the environmental assessment) as well as initial comments from government reviewers (Appendix 10 of EA Report)." (p. 48, 49, addendum)

The proponent goes on to explain the way in which the effects values were developed as follows:

"... the levels of effects as discussed in the report ... was compared to the criteria for major, moderate, minor in Table 6.10 and given a score of 5, 3, 1 or 0 (for insignificant) to correspond to this." (p. 49, addendum)

Details on how the weighting and scoring were developed for each of the 21 parameters listed in Tables 6.10, 6.11 and 8.1 are provided on pages 50 to 52 of the addendum.

Section 6.8.3 of the EA states that the before mitigation ranking of sites identifies Site 3 as preferred, followed by Sites 2 and 4 (equally ranked) and Site 1.

The criteria which resulted in major differences between sites and the reasons for these differences are also discussed in Section 6.8.3 of the EA. As previously indicated, the proponent's mitigation and monitoring

commitments are discussed in Section 7.3 of the EA. The proponent has indicated that mitigation for components of the environment not specifically identified in Chapter 7 of the EA was built into the design of the facility (Mark Skuce, PSI, pers. comm., July 13, 1987). Additional mitigation measures may be found in Chapter 2 (alternatives) and Chapter 3 (project description) of the EA.

Section 8.3 of the EA presents the proponent's ranking of sites after mitigation.

Pages 52 and 53 of the addendum provide a discussion of the areas in which mitigation resulted in a change of effect ranking.

The proponent concluded that:

"Sites 4 and 2 are within 10% in ranking score, and thus ranked as equal. Site 4 is marginally better than Site 3, which is within 10% of Site 2, while Site 1 scored poorest." (Table 8.1)

"The fact that mitigation results in few changes from the low effect level relevant to many of these parameters. This is a result of a design concept that the best practicable technology was proposed from the start. For example, only the best state-of-the-art emission control was proposed even though a much less costly system would have met all MOE requirements. The Petro-Sun/SNC concept of ensuring all site alternatives were within an industrial park setting and isolated from residential or institutional zones also minimizes effect potential compared to similar plants elsewhere in Canada." (p. 53, addendum)

In Chapter 2.4 of the addendum, the proponent has updated the status of the site alternatives and indicated that Sites 1 and 3 have transferred ownership and are no longer available.

The advantages and disadvantages of the remaining two alternatives (Sites 2 and 4) are summarized in Chapter 2.4 of the addendum.

As indicated in Section 3.1 of this Review, on August 4, 1987, the solicitor for the proponent advised the Minister of the Environment that approval is being sought for the facility to be located on Site 4 only.

The proponent has indicated that while Site 2 has no overwhelming disadvantages, Site 4 is preferred for several reasons. Petro-Sun Inc./SNC is under the impression that the Ministry of Transportation and Communications is investigating Site 2 for possible use. Site 4 has no such potential plans for it. Site 4 is also closer to the transformer station and a shorter access road is required. On this basis, the proponent determined that Site 4 was preferred. (Mark Skuce, PSI, pers. comm.)

3.4 Conclusion on First Criterion: EA Components

On the basis of the information provided in the EA document, the July, 1987 addendum and in the context of the constraints of the private sector, the EA Branch concludes that in the selection of the preferred alternative, the proponent has considered the components of an EA which the Branch interprets are required by sub-section 5(3) of the Environmental Assessment Act.

A description of the affected environment is provided in Section 5 of the EA.

With respect to the examination of alternatives, the EA documents the range of alternatives considered in planning. The proponent has indicated that reasonable alternatives were considered to be those reasonably within its business mandate or market sector.

In the case of this specific application, the proponent, Petro-Sun Inc./SNC, is in the business of designing and marketing energy from waste technology.

As a result, functionally different alternatives "alternatives to the undertaking" were not evaluated as they did not fall within the range of alternatives reasonably within the proponent's "business mandate or market sector". The alternative of not proceeding with the project, the null alternative was, however, considered by the proponent.

In Section 2 of the EA and Chapter 2 of the addendum, the proponent has documented its consideration of the net effects, advantages and disadvantages, covering the full scope of environment for the range of project alternatives which were examined. The documentation of the evaluation of site alternatives in Sections 2.3.1, 5, 6 and 8 of the EA and Chapters 5 and 6 of the addendum indicates that the proponent considered the environmental effects of the alternatives as well as measures to prevent change or mitigate those effects.

Section 3 of the EA and Chapter 3 of the addendum provide a description of the undertaking, Section 6 and Chapter 6 discuss potential environmental effects and measures to prevent change or mitigate those effects are presented in Chapter 3 and Section 3 and Section 7.

The EA Branch concludes that this information indicates that the method of analysis used by the proponent, taking into consideration the constraints of the proponent with respect to the range of alternatives considered, contains the components which the Branch interprets are required by section 5(3).

PART 4 - REVIEWERS' COMMENTS

4.0 Introduction

The Government Review is meant to address the quality of the Environmental Assessment by providing a balanced evaluation. While the Environmental Assessment Branch evaluates whether the required components are contained in the Environmental Assessment, the ministries and agencies participating in the review evaluate the technical quality and completeness of the information describing the components of the Environmental Assessment.

Reviewers were asked to provide an evaluation based on their mandate of:

- The technical quality and completeness of the EA which includes the soundness of the data, analysis and conclusions in the Environmental Assessment as well as an evaluation of the appropriateness of the level of detail of this information and the range of alternatives studied.
- How well the Environmental Assessment addressed the policy interests of each review Ministry or agency.

A number of reviewers have provided extensive comments on the EA. Only the conclusions of their review, however, and the headings of the matters addressed in their comments, are highlighted in this Section of the Review.

The full text of the comments provided by reviewers, which were considered in reaching the conclusions on the EA and the undertaking in Part 5 of this review, may be found in Appendix 1 of this Review.

4.1 Further Action Required

Ministry of Citizenship and Culture

The Ministry has provided detailed comments on: the data, analyses and conclusions in the EA; the range of alternatives investigated; monitoring and contingency plans; the way in which the proponent intends to implement the undertaking; compliance reporting; the importance relevant to other aspects of the environment given to its interests in the selection of the undertaking; and, the role which it played in pre-submission consultation.

The Ministry concludes that:

"This Ministry has no objection to the undertaking so long as heritage values on the chosen property are not compromised.

The proponent has committed itself to carrying out an archaeological survey of the selected property and mitigation of any potential impact. Such mitigation shall include the preparation of a report on the analysis of the archaeological findings.

The proponent must undertake to consult with the Regional Archaeologist should anything of archaeological significance be uncovered during construction.

The proponent has produced a satisfactory EA document from the standpoint of this Ministry."

Comment on Addendum

The Ministry indicates that it has no objection to the undertaking as a result of the proponent's commitment to carrying out a complete heritage resource assessment and mitigation of any impacts to the satisfaction of the Heritage Branch of the Ministry.

Ministry of the Environment

The Ministry has provided extensive comments and concludes that:

"The Ministry review of this Environmental Assessment uncovered several areas of weakness which are detailed below in the specific comments. The Ministry expects that the items addressed in the specific comments will be answered either before or at the Hearing. We also recognize that this EA is the first private sector resource recovery proposal to go through the EA process so that there are no specific precedents to follow."

Specific comments are provided on:

- noise
- land use compatibility
- socio-economic concerns
- organic emissions
- ash
- air pollution control
- instrumentation
- contingency planning
- Ministry requirements for incinerators
- state-of-the-art air pollution control
- applications for certificates of approval
- regulation 308 concerns
- alternatives to the undertaking
- alternative methods

In a number of the areas of specific comment the Ministry has indicated a concern with the technical quality and level of detail of the information provided as well as some of the assumptions employed in the analysis.

Comment on the Addendum

The Ministry notes that due to time constraints the review of the addendum focuses primarily on responses to its previous comments.

The Ministry comments indicate outstanding concerns in the following areas:

- Ministry requirements for incinerators
- socio-economic concerns
- noise assessment
- contingency planning

The Ministry concludes that:

"The addendum document like the original EA document makes comparisons of general statements without the support of illustrative data. Such unsupported statements are open to question. However we believe that there remain no major problems with the documents received to date which cannot be resolved either at or before a hearing."

Additional Comment

On August 27, 1987 the Ministry provided an additional comment which it wished to have included in the Review. The Ministry noted that this comment was the result of additional comments received from the Waste Management Branch.

The Ministry indicates that the EA document is incomplete since it does not address the impact the undertaking will have on the Regional Municipality of Peel's waste reduction program.

The Ministry clarified that the proponent needs to examine the potential effects of the future operation of its facility on the reduction, reuse and recycling components of the Regional Municipality of Peel Waste Management Master Plan Update. In addition, the agreement between the proponent and the Regional Municipality of Peel should be examined in this light. (Pers. Com., G. Donnelly, September 1, 1987.)

The Ministry notes that the proponent should investigate the matter and be prepared to provide the required information at the hearing. The Ministry states that it would appreciate obtaining the results of the investigation in advance of the commencement of the hearing.

Ministry of Health

The Ministry of Health comments that:

"We note that equipment is proposed for maintaining specific stack emissions parameters. Heavy metal and chlorine-organic compound concentrations in the air adjacent to the facility site should be added to the list of parameters to be monitored. The details of such monitoring program should satisfy your Ministry's criteria and should be included in the agreement between the proponent and the Regional Municipality of Peel."

Comment on Addendum

The Ministry indicates that with the possible exception of any comments which may be made by the local Medical Officer of Health, the proposed undertaking does not appear to present any negative impact on its programs or policies.

Ministry of Labour

The Ministry indicates the need for compliance with the Occupational Health and Safety Act R.S.O. 1980, c. 321 and its relations should be clearly set out in the planning, implementation and operational procedures for the project and encloses a list of regulatory initiatives.

The Ministry of Labour had no comments on the addendum.

Ministry of Municipal Affairs

The Ministry states that the EA has considered the relationship of the undertaking to its policies and programs, specifically the Parkway Belt West Plan, in an acceptable manner.

The Ministry indicates, however, that:

"The discussion does not seem to address the extent of compatibility or conflict between the project and future land uses in its vicinity as anticipated by the official plans of the two municipalities. This should be included in the assessment to allow for a more complete consideration of the impacts of the facility."

Comment on Addendum

The Ministry indicates that its previous comments have been satisfactorily addressed to in the addendum.

Ministry of the Solicitor General - Ontario Provincial Police

The Ministry states that no concerns were identified with respect to the delivery of police service but notes that:

"Due to the fact, however, that all of the components in the proposed process are confined to the cities of Mississauga and Brampton, any contingencies surrounding transportation and emergency procedures should be pursued with the appropriate municipal authorities."

Comments on Addendum

The Ministry suggests that appropriate municipal authorities be contacted if the proponent intends to accept industrial waste whose transportation is regulated by statute.

Ministry of Natural Resources

The Ministry stated that it has:

"... no objection to the presentation, interpretation or conclusions derived from the information that we originally provided to the consultant.

We recognize that the final site selection will possibly result in the exclusion of Site No. 4, which is the area of concern for this agency, because of the potential impact on Etobicoke Creek."

Comment on Addendum

With respect to the location of the facility at Site 4, the Ministry has stated that:

"We would require detailed drawings and site plans with assurance that during construction all plausible safeguards be employed to minimize soil erosion and stormwater movement of sediment. Post construction details relating how stormwater runoff and sediment control would be conducted would require our approval prior to instigation."

The Ministry indicates that they do not have serious concerns about the location of the facility at Site 4 but will be requesting conditions on the approval regarding their requirements. (Peter White, MNR, pers. comm., Aug. 4, 1987)

CN Rail

CN Rail indicates that it has no environmental objections to the location of the facility at any of the four candidate sites and states that:

"As access to Site No. 2 will necessitate the crossing of the rail siding serving Domtar, a further detailed site plan should be provided to the Railway if this site is selected. The introduction of at least 120 trucks over this track poses a potential safety risk which can be reduced if safety devices and modern rail grade crossing materials are considered."

Ontario Hydro

Ontario Hydro indicates that it does not expect the proposed facility to jeopardize its operation and maintenance of its existing and future facilities in the area (these are specifically listed in its response which can be found in Appendix 1). Hydro goes on to request:

"... the opportunity to review the final design of the facility to ensure no impact on an existing and planned transmission facilities."

With respect to the purchase of electricity from Petro-Sun/SNC, Hydro states that:

"Ontario Hydro would be committed to purchase power upon receiving written notice from Mississauga Hydro, indicating that they would not be interested in making the purchases. A draft Purchase Agreement from the subject project was sent from Ontario Hydro (A.G. Barnstaple to Petro-Sun (J.T. Pappain) March 9, 1987."

Comment on Addendum

Ontario Hydro notes that it has no comments on the addendum and that the proponent should continue to liaise with Ontario Hydro regarding the proposed sale of electricity.

4.2 Comments: No Further Action Required

Ministry of Energy

The Ministry of Energy has provided comments on each of the seven matters dealt with in the EA Branch letter to reviewers (Feb. 2, 1987).

In addition, the Ministry has outlined the Government's policy relating to energy from waste facilities. The Ministry states that this policy set out the context for its consideration of the EA.

The discussion of the data analysis and conclusions in the EA includes:

- a) a secure supply of waste at a reasonable tipping fee
- b) a dependable energy market
- c) proven conversion technology
- d) economic and financial viability
- e) stable ownership, management and operational structure.

The Ministry indicates that the proponent has not to date met the following criteria:

- a secure supply of waste at a reasonable tipping fee
- a dependable energy market
- economic and financial viability
- stable ownership, management and operational structure

The Ministry has no legislative requirements relating to the undertaking.

The Ministry indicates that it is satisfied with the undertaking subject to the concerns discussed for the above four criteria.

The Ministry concludes by stating that:

"The Ministry of Energy supports energy from waste from a program and policy perspective. Although the documentation for this specific project does not meet all of the Ministry's criteria for energy from waste facilities, the Ministry feels that the documentation is sufficient to proceed to a hearing under the Consolidated Hearings Act." (p. 5)

Comment on Addendum

The Ministry indicates that the addendum has not provided additional information relating to the issues identified in its earlier comments and states that while the level of detail would be considered inadequate if government assistance is requested no assistance is requested.

The Ministry states that it:

"... continues to take the position that the documentation is sufficient to proceed to a public hearing. It is likely that a Joint Board would require the additional information identified by the Ministry of Energy before it could reach a decision on the undertaking."

Ministry of Government Services

The Ministry indicated that two of the sites are in the Parkway Belt and noted that the Ministry of Municipal Affairs should comment on the appropriates of the sites.

The Ministry of Municipal Affairs has provided comments on the sites.

The Ministry also indicated that it had concerns with the discussion of air quality effects in the EA.

Comment on Addendum

The Ministry has stated that its original concerns are satisfactorily addressed. It is noted that further dealings would be required in connection with Site 2. Since the date on which the comments were provided, the proponent has indicated that it will be seeking approval for the facility at Site 4 only.

Ministry of Solicitor General - Office of the
Fire Marshall

The Office of the Fire Marshall concluded that the construction and operation of the facility would not impact on its mandate and that it was satisfied with the submission and had no concerns with its content.

Ministry of Transportation and Communications

The Ministry indicated that it had no concerns with the environmental assessment and no objection to the approval of the undertaking.

Medical Officer of Health - the Regional
Municipality of Peel

The Medical Officer of Health stated that he had no objections with respect to the EA documents. He noted that any additional input from the Health Department would be included in the Regional Municipality of Peel's position on the proposal.

4.3 No Comments

The Ministry of Industry, Trade and Technology

The Ministry indicated that it had no comments.

4.4 Conclusions on Second Criterion:
Component Quality and Completeness

Reviewers have provided an evaluation of the technical quality and level of detail of the information provided in the EA, the appropriateness of the range of alternatives considered, and an evaluation of the weight the proponent has given to the policy interests of their particular Ministry or agency during the course of planning.

Most reviewers have indicated that the EA is satisfactory. Several reviewers identified the need for further actions or dialogue if the undertaking is approved.

The Ministry of the Environment has indicated outstanding concerns with the level of detail and/or completeness of certain information in the EA. The Ministry stated, however, that they believe that there remain no major problems with the document which cannot be resolved either at or before a hearing.

Based on an analysis of reviewers' comments regarding the technical quality and level of detail of the components of the EA and the range of alternatives considered, the EA Branch concludes that the second criterion for meeting subsection 5(3) of the Environmental Assessment Act has not been met.

PART 5 - CONCLUSIONS ON THE ENVIRONMENTAL ASSESSMENT
AND THE UNDERTAKING

5.1 The Environmental Assessment

The Review presents an evaluation of the EA from the standpoint of the following two criteria:

1. Are the components of an EA present, (scope of inquiry and method of analysis); and,
2. Is the technical quality and level of detail of these components satisfactory and is there an appropriate range of alternatives?

With respect to the Petro-Sun Inc./SNC Environmental Assessment, the EA Branch is satisfied that the components of an EA are present.

Reviewers have provided an evaluation of the technical quality and completeness of the information presented in the EA, and the appropriateness of the range of alternatives considered. As discussed in Part 4 of the Review, the Ministry of the Environment has indicated a concern with the completeness and/or quality of the documentation of certain matters in the EA.

Based on an analysis of whether the components which the EA Branch interprets are required by subsection 5(3) are present and whether the technical quality and level of detail of these components is satisfactory, and that there is an appropriate range of alternatives, as addressed by reviewers, the EA Branch concludes that subsection 5(3) of the Environmental Assessment Act has not been met.

Following the publication of this Review, there is an opportunity for the proponent to discuss with review

ministries and agencies the matters which they have raised in their comments on this Environmental Assessment, and to the extent possible, to resolve these matters prior to the commencement of a hearing.

5.2 The Undertaking

Reviewers were asked to comment on how well the undertaking addresses the policy interests of their particular ministries. No reviewers raised concerns in this regard.

APPENDIX 1

DISTRIBUTION MEMOS TO REVIEWERS
AND
COPY OF REVIEWERS

APPENDIX 1
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323-4319

February 2, 1987

MEMORANDUM

TO: Distribution List #1

FROM: Roger Clarke
Review Coordinator
Environmental Assessment Branch

RE: PETRO-SUN INTERNATIONAL,
ENERGY FROM WASTE FACILITY, BRAMPTON
REGIONAL MUNICIPALITY OF PEEL
EA FILE NO. PR-BR-02

Enclosed is an Environmental Assessment (EA), which has been submitted to the Minister of the Environment for approval.

Review of Project

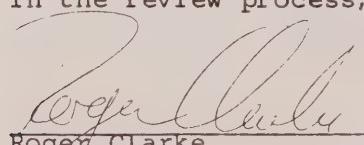
- The EA Act requires that a Review of the EA be prepared.
- The Review is designed to evaluate the EA based on the strengths as well as the weaknesses of the EA. When significant weaknesses are identified, reviewers should indicate what changes are required and/or what research is needed to obtain a satisfactory EA document.

Contribution to Review

To contribute to the Review of this EA, each reviewer is asked to carry out an evaluation by responding to the appropriate questions which are found in Attachment 1 of this letter.

Please provide your comments to me by April 6, 1987.

If you have any questions, or if I can assist you in the review process, please call me at 323-4319.


Roger Clarke

Enclosure

ATTACHMENT #1

The Ministry of the Environment (EA Branch)
Review Coordinator:

- Evaluates whether the EA contains all the components of subsection 5(3) of the EA Act.

Purpose of Questions to Reviewers

The questions listed below are designed:

- to obtain advice from reviewers on the quality of the environmental assessment and
- if necessary, how to improve it.
- Questions 1 through 4 address the analysis of the technical quality and completeness of those components.
- Question 5 aims to ensure that actions necessary to meet reviewers' requirements are specified in the EA and will be carried out to the reviewer's satisfaction.
- Question 6 provides advice on how well the undertaking addresses the policy interests of a particular Ministry.
- Question 7 provides information on the roles reviewers played during pre-submission consultation as well as the quality of the consultation process.
- If an EA contains the proper components and reviewers are satisfied with their quality and completeness, the Review Coordinator will conclude that the EA meets the requirements of subsection 5(3) of the Act.
- If the EA is deficient in meeting either criterion, the EA Branch will conclude that the EA does not meet the requirements of subsection 5(3).

Reviewers' Response

- Please address the following questions in your evaluation of the EA from the perspective of your Ministry's or agency's mandate.
- If strengths or weaknesses are identified, please indicate their significance.
- If weaknesses are significant, please indicate what changes, actions and/or research are required to address your concerns.

1. Are the data, analyses and conclusions in the EA satisfactory, i.e., are these relevant and substantiated?
 - ° Does the information in the EA cover all relevant issues at an appropriate level of detail?
 - ° Are you satisfied with the methods and techniques described in the EA to predict environmental effects and any mitigation measures necessary to reduce those effects?
 - ° Is the analysis logical and easy to follow?
2. Do you feel that the proponent has chosen an appropriate range of alternatives to investigate in the EA?
3. Are the monitoring and contingency plans specified by the proponent in the EA adequate?
4. Is the way in which the proponent intends to implement the undertaking satisfactory?
 - ° Does the undertaking comply with your Ministry's or agency's legislative requirements?
5. Has the proponent clearly indicated how compliance reporting regarding commitments in the EA related to your mandate will be fulfilled?
6. Are you satisfied with the importance, relative to other aspects of the environment, given to your interests in the selection of the undertaking?
 - ° Is the undertaking satisfactory to you? If not, which alternative(s) do you prefer and why?
7. What role did your agency play during pre-submission consultation, e.g., a technical resource, a member of a working group, a reviewer?
 - ° Are you satisfied with the way in which your advice at that stage of the EA process was taken into consideration by the proponent in the preparation of the EA?

Reviewers Evaluation

In preparing your overall evaluation, please take account of the following considerations:

- Reasons, with substantiation, should be given for any conclusions.
- Adequate consideration should be given to all alternatives, not just the recommended one(s).

The questions above are not meant to restrict the scope of the review. Please provide any additional comments from the perspective of your mandate which you feel are important to this evaluation.

©

PETRO-SUN EFW, REGION OF PEEL
LIST OF GOVERNMENT REVIEWERS (LIST 1)

JANUARY, 1987

Mr. R.J. Spence
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M5V 2X7

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M7A 2R9

Mr. John Lang
Advisor, Electricity
Ministry of Energy
Electricity Section
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Mr. Bill Balfour
Attn: Don Andrijiw
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Land Use Planning Branch
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Environmental Protection Service
Attn: Simon Llewellyn
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Superintendent C.J. Cole
Ministry of the Solicitor General
Director, Policy & Planning Br.
Ontario Provincial Police
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Highway Engineering Division
Ministry of Transportation and
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M3M 1J8

Mr. Art Holder
Director
Central Region
Attn: Mr. Peter White
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10670 Yonge Street
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L4C 3C9

Dr. P. Cole
Medical Officer of Health
10 Peel Centre Drive
Brampton, Ontario
L6T 4B9

323-4596

July 8, 1987

MEMORANDUM

TO: Government Review Team
Distribution List #1

FROM: Peggy Farnsworth
Environmental Planner
Environmental Assessment Branch

RE: ADDENDUM TO PETRO-SUN/SNC RESOURCE
RECOVERY FACILITY IN THE REGIONAL
MUNICIPALITY OF PEEL ENVIRONMENTAL
ASSESSMENT
EA FILE NO. PR-BR-02

Thank you for contributing comments on the above environmental assessment. As you may be aware, the proponent has prepared an addendum to the environmental assessment.

Please review the enclosed addendum and its relationship to the EA which you have already commented on. If the addendum contains material which deals with your previous comments to your satisfaction or if any new concerns have arisen from the addendum, please indicate this in your response.

Please provide any comments to me by July 17, 1987.
If necessary, please call me at 323-4596 to convey your comments on the 17th and follow up in writing by the 21st. I apologize for the early deadline but this review is already behind schedule.

If I do not hear from you by this date, I will assume that you have no concerns.

If you do not have any concerns, I would appreciate hearing from you to confirm your comments.

If you have any questions, please contact me at 323-4596.

Peggy Farnsworth
Peggy Farnsworth

Enclosure

PF/jm



Ontario

International Year of
Shelter for the Homeless

057



1987
Année internationale du
logement des sans-abri

Ministry of Ministère des
Citizenship Affaires civiques
and Culture et culturelles
Heritage Branch

77 Bloor Street West 77 ouest, rue Bloor
Toronto, Ontario Toronto, Ontario
M7A 2R9 M7A 2R9

May 1, 1987

Your File:

Our File:

Mr. Brian Ward
Director
Environmental Assessment Branch
135 St. Clair Avenue W.
Suite 100
Toronto, Ontario
M4V 1P5

ENVIRONMENTAL ASSESSMENT BRANCH
RECEIVED

MAY 13 1987

OFFICE OF
THE DIRECTOR

Dear Mr. Ward:

Re: Petro-Sun International, Energy
from Waste Facility, E.A.
File No. PR-BR-02

Thank you for the opportunity to review the above documents. Attached you will find comments prepared by my staff.

The E.A. is satisfactory in our opinion and so long as the program of archaeological survey and mitigation is carried out as described, we would have no objection to the undertaking.

Sincerely yours


Robert Montgomery
Director

Ministry of Citizenship and Culture
Heritage Branch

Environmental Assessment Review of
Petro-Sun International, Energy from
Waste Facility, Brampton, R.M. of
Peel, E.A. File No. PR-BR-02

The following comments follow the question format provided in Mr. Clarke's February 2, 1987 covering memorandum. The comments are summarized at the end.

1. Are the data, analyses and conclusions in the EA satisfactory, i.e., are these relevant and substantiated?

-Does the information in the EA cover all relevant issues at an appropriate level of detail?

-Are you satisfied with the methods and techniques described in the EA to predict environmental effects and any mitigation measures necessary to reduce those effects?

-Is the analysis logical and easy to follow?

Comment

The analysis is logical and easy to follow. The methods and techniques used by the heritage resource consultants to predict environmental effects are satisfactory; the proposed mitigation methods are acceptable. The data on properties 3 and 4 under consideration is incomplete due to lack of access to the properties, but the proponent has agreed to rectify this as soon as possible.

2. Do you feel that the proponent has chosen an appropriate range of alternatives to investigate in the EA?

Comment

The proponent has chosen an appropriate range of alternatives.

3. Are the monitoring and contingency plans specified by the proponent in the EA adequate?

Comment

The proponent's intention is thoroughly to assess the candidate property from a heritage standpoint and to mitigate any potential impacts through excavation. Insofar as this will be done before construction starts, monitoring and contingency plans are not discussed. M.C.C. would like the proponent to undertake to contact the Regional Archaeologist should anything of heritage significance be uncovered during the construction phase.

4. Is the way in which the proponent intends to implement the undertaking satisfactory?

-Does the undertaking comply with your Ministry's or agency's legislative requirements?

Comments

The proponent intends to implement the undertaking with regard to our mandate, in a satisfactory way. The undertaking therefore complies with this Ministry's legislative requirements.

5. Has the proponent clearly indicated how compliance reporting regarding commitments in the EA related to your mandate will be fulfilled?

Comment

Compliance reporting has not been dealt with in detail in this document. All licensed archaeological work in the province, however, must be reported on as soon after the field work is done and this report, with its recommendations, should be reviewed by this Ministry prior to the commencement of construction. It is important that the proponent realize that mitigation includes analysis of and reporting on findings as well as preparing an accessible consultable record of findings.

6. Are you satisfied with the importance, relative to other aspects of the environment, given to your interests in the selection of the undertaking?

-Is the undertaking satisfactory to you? If not, which alternative(s) do you prefer and why?

Comment

M.C.C. is satisfied with the importance given to our interests in the selection of the undertaking.

M.C.C. has no objection to the undertaking so long as potential impact to heritage resources is mitigated.

7. What role did your agency play during pre-submission consultation, e.g., a technical resource, a member of a working group, a reviewer?

-Are you satisfied with the way in which your advice at that stage of the EA process was taken into consideration by the proponent in the preparation of the EA?

Comment

This agency served as both a technical resource and as a reviewer during the pre-submission consultation phase.

The advice supplied has been taken into consideration by the proponent.

Summary

This Ministry has no objection to the undertaking so long as heritage values on the chosen property are not compromised.

The proponent has committed itself to carrying out an archaeological survey of the selected property and mitigation of any potential impact. Such mitigation shall include the preparation of a report on the analysis of the archaeological findings.

The proponent must undertake to consult with the Regional Archaeologist should anything of archaeological significance be uncovered during construction.

The proponent has produced as satisfactory E.A. document from the standpoint of this Ministry



Ontario

International Year of
Shelter for the Homeless



1987
Annee internationale du
logement des sans-abri

Ministry of Ministère des
Citizenship Affaires civiques
and Culture et culturelles

Heritage Branch
Architecture and Heritage
Planning

July 28, 1987

Ms. Peggy Farnsworth
Environmental Planner
Environmental Assessment Branch
135 St. Clair Avenue West
Suite 100
Toronto, Ontario
M4V 1P5

Dear Ms. Farnsworth:

Re: Addendum to Petro-Sun/SNC Resource Recovery Facility in
R.M. of Peel Environmental Assessment #PR-BR-02

Thank you for the opportunity of commenting on the above addendum.

I gather that the proponent is interested in alternative properties No. 2 and 4. I understand as well that the proponent is committed to a complete heritage resource assessment of the chosen property and to mitigation of any inevitable impact on these resources to the satisfaction of the Heritage Branch of M.C.C.

This being the case, we have no objection to the undertaking as described in either the original document or the addendum.

If you have any questions please do not hesitate to telephone.

Yours sincerely,

Peter Carruthers
E.A. Coordinator

cc: Bill Fox

PC/ab

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2nd Floor

416/ENVIRONMENTAL ASSESSMENT
BRANCH

Your File

RECEIVED

Our File:

AUG 7 1987

TO Peggy

EA FILE #

PUBLIC RECORD
FULL TEXT



Ontario

Ministry
of
Energy

063

Energ
Ontario

Queen's Park
Toronto, Ontario
M1A 2B7
Tel/Fax-06217880
963-1276

ENVIRONMENTAL ASSESSMENT
BRANCH

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APR 6 1987

TO R.C.

EA FILE # _____
FULL TEXT
PUBLIC RECORD

April 6, 1987

Mr. Roger Clark
Review Co-Ordinator
Environmental Assessment Branch
Ministry of the Environment
135 St. Clair Avenue West
Suite 100
Toronto, Ontario
M4V 1P5

Dear Mr. Clark:

Re: Petro-Sun International, Energy From Waste Facility
Brampton, Municipality of Peel
Environmental Assessment File No. PR-BR-02

I refer to your memorandum dated February 2, 1987 seeking comments on the following Environmental Assessment (EA) submitted by Petro-Sun International Inc. and the SNC Consortium.

**Petro-Sun/SNC Resource Recovery Facility in the
Regional Municipality of Peel.**

The purpose of the undertaking described in the E.A. is:

the construction and operation of an energy from waste facility and associated energy distribution system.

It may be useful at this point to outline the Government's policy relating to energy from waste facilities. This policy sets the context for our consideration of the Petro-Sun/SNC Environmental Assessment.

GOVERNMENT POLICY RELATING TO ENERGY FROM WASTE (EFW)

The Government of Ontario is committed to making energy consumers aware that fuel choices in the marketplace must be made wisely. This will ensure that the provincial economy is less vulnerable to energy price increases in the years to come. As an indigenous energy resource, municipal solid waste offers one such fuel choice. Energy from waste can help reduce reliance on conventional fuel sources while at the same time making use of energy produced in Ontario.

The Government of Ontario has reconfirmed its commitment to energy from waste through the new EFW Program announced on March 13, 1987. This program forms part of the Ministry of Energy's plans to make use of a variety of waste products for energy and stresses the government's intention to diversify Ontario's electricity supply. Energy from waste plants will take advantage of available energy resources and at the same time, decrease the need for landfill sites.

The Ministry of Energy supports energy from waste projects, such as the Petro-Sun/SNC cogeneration plant proposal, provided they meet the following criteria:

- a secure supply of waste at a reasonable tipping fee;
- a dependable energy market;
- proven conversion technology;
- use of best available control technology;
- economic and financial viability;
- stable ownership, management and operational structure.

The Ministry of Energy's consideration of the environmental assessment documentation submitted by Petro-Sun/SNC can be summarized by responses to the following questions.

1. Are the data, analyses and conclusions in the E.A. satisfactory, ie. are these relevant and substantiated?

To assist the development of a response to this question, the Ministry of Energy has considered the information contained in the documentation against the criteria listed above, namely:

- (a) A secure supply of waste at a reasonable tipping fee

The Ministry of Energy is satisfied that an adequate supply of waste can be made available subject to agreement with the Regional Municipality of Peel. The tipping fee appears to reflect the avoided costs of waste management options. Copies of a signed agreement confirming waste supply and tipping fees are required before the Ministry of Energy can be fully satisfied on these points.

(b) A dependable energy market

The generation and delivery of steam to Domtar Ltd. and electricity to Ontario Hydro and/or the municipal hydro power grid is discussed but not in detail. Past steam loads and projections for future steam requirements at Domtar Ltd. are not given. Nor is there any discussion of what percentage steam energy the EFW plant will supply to Domtar Ltd. or how much electricity will be generated for sale to the grid. Will potential future conservation measures have any impact on energy supply from the EFW plant?

No documentation is supplied to confirm that Domtar Ltd. will purchase steam from the EFW facility. Will Ontario Hydro or the PUC purchase the electricity?

Insufficient information is given for the Ministry of Energy to properly evaluate the proposal with regard to its ability to meet the secure energy market criterion.

(c) Proven conversion technology

The Ministry of Energy is satisfied that the proponent plans to make use of proven conversion technology. Since the final design and equipment performance must be approved by the Ministry of the Environment, the Ministry of Energy is satisfied that the Ministry of the Environment's review will assure that the project satisfies the criterion of proven conversion technology.

(d) Economic and financial viability

The Ministry of Energy cannot comment on the economic and financial viability of the project because limited information on this subject is provided.

Information required to comment on the economic viability of this project includes the price of steam and its discount rate, tip fees, electricity sales and escalation rates as well as full details on capital and operating costs.

(e) Stable ownership, management and operational structure

The Ministry of Energy cannot comment on this area as limited information was provided. There is no discussion of the organizational structure to be employed to

operate the plant, the availability and amount of working capital or the availability of a contingency fund.

2. Do you feel that the proponent has chosen an appropriate range of alternatives to investigate in the E.A.?

Yes, in our view, an appropriate range of alternatives has been investigated.

3. Are the monitoring and contingency plans specified by the proponent in the E.A. adequate?

The monitoring and contingency plans are not directly relevant to the mandate of the Ministry of Energy.

4. Is the way in which the E.A. proponent intends to implement the undertaking satisfactory? Does the undertaking comply with your Ministry's legislative requirements?

It is the Ministry of Energy's view that the implementation process for an energy from waste project should address the Ministry's Energy From Waste criteria. As indicated in the Ministry's response to question 1 above, Petro-Sun/SNC has not to date met the following criteria:

- a secure supply of waste at a reasonable tipping fee
- a dependable energy market
- economic and financial viability
- stable ownership, management and operational structure

The Ministry has no legislative requirements relating to the undertaking.

5. Has the proponent clearly indicated how compliance reporting regarding commitments in the E.A. related to your mandate will be fulfilled?

There are no compliance reporting commitments for the Ministry of Energy.

6. Are you satisfied with the importance, relative to other aspects of the environment, given to your interests in the selection of the undertaking?

Yes, the Ministry of Energy is satisfied with the undertaking subject to the concerns expressed in response to question 1.

7. What role did your agency play during the pre-submission consultation ie. a technical resource, a member of a working group, a reviewer?

Ministry of Energy staff met with Petro-Sun/SNC on several occasions and attended public meetings.

ADDITIONAL COMMENTS

- page 10 - 15% of the province's energy is not proposed to come from energy from municipal solid waste by 1995. It will probably be closer to 2%.
- page 1.5 - The system referred to at the top of page 1.5 is not a Consumat System, but an O'Connor system, now owned by Westinghouse.
- page 1.14 - last paragraph should read 5%, not 15% of Ontario's energy will come from renewable or recoverable sources by 1995 (Energy From Waste, Ministry of Energy, 1980).

CONCLUSION

The Ministry of Energy supports energy from waste from a program and policy perspective. Although the documentation for this specific project does not meet all of the Ministry's criteria for energy from waste facilities the Ministry feels that the documentation is sufficient to proceed to a hearing under the Consolidated Hearings Act.

Yours sincerely



John Lang
Advisor, Electricity



Ontario

Ministry
of
Energy

July 21, 1987

ENVIRONMENTAL ASSESSMENT
BRANCH

RECEIVED

JUL 21 1987

TO _____

EA FILE # _____

PUBLIC RECORD

FULL TEXT

858
Energy
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965- 1276

Ms. Peggy Farnsworth
Environmental Planner
Environmental Assessment Branch
Ministry of the Environment
Suite 100
135 St. Clair Avenue West
Toronto, Ontario
M4V 1P5

Dear Ms. Farnsworth:

Re: Petro-Sun International, Energy from Waste Facility
Brampton, Municipality of Peel
Addendum to the Environmental Assessment-File PR-BR-02

I refer to your memorandum dated July 8 requesting comments on the Addendum to the Environmental Assessment submitted by Petro-Sun International for an Energy From Waste facility in Brampton.

The addendum provides no additional information relating to the issues identified in the Ministry of Energy's comments dated April 6, 1987. For example, details of the agreement with the Regional Municipality and the terms and conditions of the agreement with Domtar are still lacking.

If Petro-Sun had been applying for government assistance, we would consider that the level of detail contained in the documents is inadequate and we would insist that Petro-Sun provide a response to our comments. However, no government assistance is requested.

The Ministry of Energy continues to take the position that the documentation is sufficient to proceed to a public hearing. It is likely that a Joint Board would require the additional information identified by the Ministry of Energy before it could reach a decision on the undertaking.

It should also be noted that the Errata Sheet on page 55 of the Addendum and the attached Errata Report do not include the errors identified under the heading "Additional Comments" in the Ministry of Energy's letter dated April 6, 1987.

Yours sincerely,



John Lang
Advisor, Electricity

cc: Jim Knowles
Carman Chisamore



Ministry
of the
Environment Ministère
de
l'Environnement

July 27 1987

070

**ENVIRONMENTAL APPROVALS AND
LAND USE PLANNING BRANCH**

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323-4397

July 27, 1987

RECEIVED

JUL 29 1987

**OFFICE OF
THE DIRECTOR**

MEMORANDUM

TO: B.R. Ward, Director
 Environmental Assessment Branch

FROM: W.R. Balfour
 Director

RE: PETRO-SUN INTERNATIONAL INC./SNC
 ENERGY FROM WASTE FACILITY
 ENVIRONMENTAL ASSESSMENT

The Ministry of the Environment has reviewed the above-noted document and staff of the following Branches submitted comments:

1. Waste Management Branch
2. Environmental Approvals and Land Use Planning Branch
3. Central Region
4. Hazardous Contaminants Co-ordination Branch
5. Air Resources Branch
6. Spills Action Centre
7. Policy and Planning Branch

General Comments

The Ministry review of this Environmental Assessment uncovered several areas of weakness which are detailed below in the specific comments. The Ministry expects that the items addressed in the specific comments will be answered either before or at the Hearing. We also recognize that this EA is the first private sector resource recovery proposal to go through the EA process so that there are no specific precedents to follow.

Specific Comments

A. Noise

The Ministry review is based on required information on the three aspects of any noise assessment, namely:

- (i) establishment of ambient sound levels in sensitive receptor locations closest to the proposed sites,

- (ii) identifying all noise sources and their acoustic characteristics and
- (iii) evaluation of noise impact and design of mitigation measures if required.

The various sensitive receptor locations are not clearly identified in the assessment. Only general noise levels near the sites are estimated. As pointed out in the report (pp. A 3-2, Section A.2.6) only existing industry and road traffic noise constitute ambient sounds. However, the report uses aircraft flyover noise and train noise as part of the ambient sound. This is not a correct method. It is seen that both the measurements and prediction of ambient sound are not as per Ministry's guidelines.

The report does not address noise impacts during the construction phase of the proposed development. All construction equipment must satisfy the noise emission standards presented in NPC-115.

The plant operations contain noise sources that are stationary as well as non-stationary. The noise output of stationary sources was not provided in detail; only general, overall numbers were given. The details of the source are important for the evaluation of the propagation of sound. For instance, on page 7.7 (Section 7-5), the report states that "Noise is attenuated by distance, at a rate of approximately 50% (or 10 dBA) per 10 metres and thus will not affect residential areas". Such a statement is not technically correct. Noise propagation depends on source parameters such as power and frequency distribution and environmental parameters such as distance, ground cover, wind and temperature gradients.

The non-stationary sources consist of ash and refuse trucks. The report merely adds these truck numbers to existing traffic and estimates noise increases. Such a procedure underestimates noise increases and is, therefore, not acceptable to the Ministry.

In Section 6.0 of Appendix 3.0, the report promises to establish the details of noise assessment. However, the details promised in Section 6.0 are precisely the information required for an Environmental Assessment.

B. Land Use Compatibility

1. The proponent states that "one of the site selection criteria used by Petro-Sun/SNC is that the incinerator should be located at least 1 km (0.6 miles) from

residential zones. The Domtar location, in an industrial park, has allowed selection of resource recovery facility site alternatives which are a minimum of 1.5 km (1 mile) from any residential zones" (page 2.5). From a land use compatibility perspective, it is critical that this situation is clearly documented in the environmental assessment. We request that current official plan designations within a 2,000 m radius of all four alternatives be provided to the Ministry. We suggest that Figure 3.3 "Alternative Site Locations (4 Sites)" should be upgraded to show surrounding land use designations.

2. With reference to Alternative 3, there seems to be an inconsistency regarding the separation distance between the site and sensitive land uses. On page 5.6 it says that "no residential areas are within 1,500 m of the site, although two houses are located on Bramalea Road about 1,000 m southeast of site 3". Alternatively, on page 6.35 the document states that "the closest existing residences are two houses on Bramalea Road which are about 300 m (1,000 ft.) from the boundary of Alternative 3". This document inconsistency needs to be corrected perhaps by showing the location of these two residences on the land use schedule.

While we note that site 3 is not available for sale at the moment, page 5.6 states that "these two houses are leased on industrial land and are not anticipated to remain into the resource recovery plant operational phase". Does this statement suggest that the houses will continue to be leased during the construction phase of the facility? Depending on the timing for industrial development of these residences, the proponent may be required to evaluate the environmental impacts of the EFW on these two houses and consider mitigation measures in the event that Alternative 3 becomes viable.

C. Socio-Economic Concerns

1. The EA does an adequate job of identifying the standard types of potential socio-economic impacts which might occur as a result of projects such as the facility proposed by Petro-Sun. There is, however, very little documentation to support the conclusions which are made regarding the likelihood or magnitude of such impacts. Reference to other EFW examples cannot be considered conclusive unless these examples can be shown to be compatible with the proposed undertaking on relevant dimensions.

2. It is unclear why Section 6.7.9 (Other Socio-Economic Indicators) discusses potential impacts on educational levels or age of housing units, since these indicators have no relationship whatsoever to EFW facilities.
3. The EA has not identified nor addressed the potential special socio-economic impacts which may result from the proposed undertaking. Special impacts are those which result from residents' perceptions that a facility possesses significant negative attributes such as toxic contaminant releases which may threaten health and property. Such perceptions are, of course, subjective but they can generate substantial fear, anxiety and stress within a community which feels threatened. Such stress, in turn, has been shown to lead to a wide variety of social and personal impacts on health, family and community relationships, and community cohesion. This kind of impact has been documented in a number of cases involving waste management facilities in North America, primarily landfill sites, where evidence of toxic release into the environment has generated widespread public concern.

The public consultation program conducted by Petro-Sun indicates that there is a concern in nearby communities about toxic emissions from the proposed facility. The EA needs to clearly identify and assess the potential for special impacts resulting from the EFW facility, as well as how such impacts would be mitigated.

D. Organic Emissions

Main Document

1. On page 3-41, the Ministry has concerns about the so-called inplant water treatment since the document merely seems to be describing a closed system for recycling the wastewater. It seems that most of the recycled wastewater will exit in the wet fly ash which is transported to the landfill. It is noted that this cannot be considered to be wastewater treatment.
2. In Section 6-3 and Chapter 6, the report discusses the emissions and modelled dispersion of these emissions using data from similar units elsewhere in Canada. For instance, the stack emission data is based on results obtained during NITEP studies of the Charlottetown PEI incinerator, and the efficiency of emission control equipment, such as the lime injection system and the baghouse filtering system is based on measurements

obtained from a Quebec City incinerator also tested by NITEP. The point can be made that the PEI unit is smaller (about $\frac{1}{4}$ of the size) of the proposed installation, and also that the feed to it may differ somewhat from municipal refuse in Peel. This may or may not affect the quality and quantity of the organics emitted. The control efficiency assumptions are based on the Quebec City unit which again was not a CONSUMAT design, but some other design which did, in fact, use lime injection and fabric filter baghouses. Consequently, we are looking at calculated emissions based on two other incinerators which may or may not be accurate indicators of the type of emission produced by this plant. It is, therefore, essential that an appropriate program is in place to monitor stack emissions and ambient air during the initial testing of this unit to verify that it does, in fact, emit the quantities of pollutants as indicated by the model.

3. On page 4-16, in the third paragraph, the first sentence of the paragraph appears to be a misquote from the 1985 Ontario Ministry of the Environment Scientific Criteria Document on PCDDs and PCDFs which is not cited in the document bibliography. The quotation indicates that this document states that there is a maximum safe daily intake of the most toxic dioxin (2,3,7,8-TCDD). This is incorrect. The MOE document states that the recommended maximum allowable daily intake for total PCDDs and PCDFs is the toxic equivalent of 10 picograms of 2,3,7,8-TCDD per kilogram body weight per day. It is not intended that this standard be used solely for 2,3,7,8-TCDDs, but was designed for the type of mixtures encountered in the Ontario environment.
4. On page 6-23, in paragraph 4, there is an incorrect statement which indicates that a safety factor of 100 was applied to establish the provisional guideline of 450 picograms per cubic metre for PCDDs and PCDFs as a maximum permissible ground level concentration. Again, the 1985 Ontario Ministry of the Environment Scientific Criteria Document is referenced. This statement is untrue since the 450 picograms per cubic metre is a point of impingement standard designed by Air Resources Branch to model dispersion from stacks and is not used or cited in the 1985 Ontario Ministry of the Environment Scientific Criteria Document.
5. On page 6-27, the fourth paragraph, last sentence, there is a reference to Appendix 11 in which it is claimed that the 100-fold factor is recommended by the Inter-

national Peer Review Team. This is not found in Appendix 11 of the current set of documents and would appear to be a misquote.

Volume of Appendices

1. In Appendix 7, page 2-5, in the last paragraph and second sentence, it is claimed that no PCDDs have been found in Canadian food currently. This is incorrect. We refer the author to the article by J.J. Ryan, R. Lizotte, T. Sakuma and D. Mori, 1985, "Journal of Agriculture and Food Chemistry", Volume 33, pages 1021-1026 which describes dioxins and dibenzofurans in Canadian chicken and pork samples.
2. On page 3-1, in the last paragraph and last sentence, the author makes the statement that Kimbrough, et al, (1984) and Kociba (1985) have concluded that available data indicates an increased incidence of cancer in populations exposed to PCDDs or PCDFs. Neither record supports this statement.
3. On page 3-14, in the first paragraph and last sentence, the statement should read "e.g., to 10,000 fold less".
4. On page 3-15, the author prefers to use a safety factor of 1,000-fold which is more conservative than the 100-fold extrapolation factor used by MOE. Again, the author indicates that the MOE ADI of 10 picograms of 2,3,7,8-TCDD per kilogram body weight per day is related to 2,3,7,8-TCDD only. The proposed ADI is, in fact, expressed in toxic equivalents equivalent to 10 picograms of 2,3,7,8-TCCD and addresses the situation where Ontario citizens are exposed to complex mixtures of PCDDs and PCDFs of which 2,3,7,8-TCDD is only a minor fraction. Consequently, the author's comparison of a 1,000-fold safety factor using 2,3,7,8-TCDD only with a 100-fold factor using the MOE proposed toxic equivalent ADI is not correct since we are comparing a single lethal substance with a mixture of similar substances, most of which do not have comparable toxicity and which are assumed to be the most toxic members of their group, whether they are or are not. This, in fact, suggests that the overall safety factor when using toxic equivalency factors is greater than 100-fold.
5. On pages 3-16 to 3-21, section 3.3.4 is used by the author to develop a concept of relative margins of safety (RMOS) in an attempt to compare ADIs with air concentrations of PCDDs and PCDFs in the modelled emissions from this plant. While the author does not

discuss the different toxicity equivalency factors developed by MOE, he treats toxicity in a somewhat confusing fashion since, in fact, if one is presented with a mixture of PCDDs and PCDFs, one would calculate the relative toxicity of the complete mixture rather than compare toxicities of each component of the mixture in isolation. This, of course, gives rise to the wide range of RMOSS calculated by the author. However, for the mixture proposed by the proponent, i.e., the mixture emitted by the PEI incinerator, one would only calculate one relative toxicity value.

E. Ash

1. On page 1.10, the compactibility of the residue generated, i.e., ash, is stated to be about 10% of the volume of the refuse burned based on truck load densities. There may be much less difference in volume after compaction at a landfill as compared to raw municipal waste due to the much lesser degree of compactibility of the ash.
2. On page 2.16, it is stated that there will be sufficient capacity available within the plant to minimize the need to store full containers of ash outdoors. There should be sufficient capacity available in the plant to eliminate the need to store full containers outdoors unless such containers are fitted with metal lids to avoid wind-blown dust.
3. On page 8.1 the previous comments on percentage reduction of ash and waste volume made in point 1 apply here as well.

F. Air Pollution Control

On pages 2.17 and 2.18, the procedure outlined in the report treats the total failure of the baghouse as a routine interruption of the auxiliary equipment not to interfere with production. This is not acceptable in that the procedure does not specify steps necessary to minimize the emissions during a baghouse failure. The total failure of the baghouse should be handled in the following way:

- (i) Each failure or use of a bypass must be reported to the Ministry of the Environment immediately as an upset condition.
- (ii) All steps necessary must be taken to minimize emissions during such a bypass. The feed to the incinerators should be immediately cut off and the

incinerator shut down in accordance with the procedures outlined later in the proposal. The use of a bypass as a routine operation procedure is not acceptable. Any control equipment that requires frequent bypassing is inadequately designed or operated. It is suggested that the baghouses installed should be sectional baghouses that would permit the shutdown of a section of the baghouse without impairing the operation of the incinerator or other sections of the baghouse. This will enable routine repairs to be made while operating, and should greatly reduce the need for any bypasses.

- (iii) Should the bypass be connected directly to the stacks before neutralization, the stack must either be constructed of stainless steel that is resistant to hydrochloric acid fumes or be thoroughly insulated to prevent the temperature of the flue gases containing hydrochloric acid from falling below the dew point of the acid since the experience on an incinerator burning a small percentage of chlorinated residue before control equipment was added indicates that severe corrosion will take place for even short-term bypasses.

This is discussed further in section N, paragraph 4.

2. On page 3.11, the negative pressure provided by combustion devices may not be sufficient to maintain a negative pressure throughout the building, particularly when some or all of these combustion devices are shut down. The building of general industrial, non-insulated construction will normally provide at least two air changes per hour through natural ventilation with the doors closed. With shipping doors left open, the rate of air change will be much higher. Therefore combustion air cannot be relied on to ensure no odour emissions from the building. It may be necessary to provide a separate exhaust system to carbon filters or equivalent to ensure that the building is always maintained under negative pressure.
3. On page 4.13 the maximum allowable emission levels for HCl and particulate are quoted for a 24-hour average period. A short-term (one half hour) maximum emission level should also be quoted.
4. On page 5.16 it is stated that existing air quality in the Regional Municipality of Peel is not extensively monitored. It should be noted that the station at the Queensway in Mississauga is a full air-quality station.

G. Instrumentation

On pages 3.16 and 3.55 to 3.56, the shut-down procedure outlined appears sufficient to maintain adequate temperature in the combustion chamber during shutdown. The equipment should be provided with adequate instrumentation to control this procedure. Among other things, there should be a recording temperature controller with a low temperature alarm that would operate if garbage is being fed into the incinerator.

H. Contingency Planning

1. On pages 3.59 and 3.60 concerning a combustion-related explosion, the document acknowledges the possibility of an explosion in the incinerator from propane or gasoline bottles or other volatile items in the garbage. The statement "the furnace units are designed to withstand explosions caused by items of this nature" should be supported by hard evidence. What procedure, mechanism or plan is put into place should any of these systems or devices fail and how is the proponent going to deal with an emergency?
2. On pages 3.60 to 3.61 concerning Environmental Protection the proponent opted to define a spill as an "uncontrolled, unintentional discharge of garbage, waste residue, fly-ash and material that:
 - ° is potentially damaging to the environment;
 - ° is potentially hazardous to the public;
 - ° has the potential to spread, if unattended; and
 - ° does not have a routine handling method".

On the basis of the formal EA it appears that the Area Municipality and the refuse carrier have made agreements that spills of refuse occurring during transport will be the joint responsibility of the two parties. It appears further that an agreement was made that "spills occurring during the transport of plant residue will be the responsibility of the plant corporation" no matter how or by whom caused.

Spills are specifically covered by Part IX of the Environmental Protection Act and the issue of inclusion or exclusion of certain materials as well as the responsibilities and duties of specific parties in the EA are not consistent with the applicable legislation. If one were to accept the formal EA, the following spills are examples which would be excluded:

- ° intentional discharges;
- ° a discharge which has the potential to spread if attended;
- ° discharge of a material which has a routine handling method;
- ° the discharge of a material which happens not to meet all four of the characteristics listed at the top of page 3.61 by connecting the characteristics with the word "and"; and
- ° spilled materials potentially hazardous to the employees.

The factors which identify the seriousness of a spill on page 3.61 are interesting but do not appear to be referred to by the procedures which follow.

The five items referred to as procedures on page 3.61 are very general and need to be supported by a spill response procedure or contingency plan which should answer "who", "where", "why" and "how". Annex VI of the "Province of Ontario Contingency Plan for Spills of Oil and Other Hazardous Material, Planning for Spill Contingencies", developed for industry and municipalities, may be of assistance to the proponent.

3. On page 6.4 concerning spillage, the rationale for fewer accidents is not supported by a risk assessment. The claim that there should be fewer accidents because haulage distances are reduced may be offset by the fact that accidents increase with increased traffic density. The proponent does not appear to have reviewed this item in detail.

The draft agreement referred in this section should be reviewed by counsel for the Municipality to ensure responsibilities under Part IX of the Environmental Protection Act are not frustrated.

The reference to "notify the Municipality" although not incorrect is incomplete and not totally consistent with Part IX of the Environmental Protection Act.

The last sentence in Section 6.1.4 refers to complying with the Environmental Protection Act. This is most reassuring but gives no information which can be reviewed. Also, statements that the proponent will

build "boilers...according to the ASME codes" and that "regulations concerning...spills...will be followed..." do not supply information which can be assessed.

I. Ministry Requirements for Incinerators

The Ministry's current draft guideline requires the following for all new refuse incinerators:

1. Equipment shall be designed to withstand continuous operation at 1100°C (2010°F).
2. Equipment shall be operated above 1000°C (1830°F).
3. Gas retention time of at least one second shall be provided at 1000°C.
4. Design shall provide for at least 6% residual oxygen in the final exhaust from the incinerator's secondary (burnout) zone.
5. A high degree of mixing shall be provided in the burnout chamber.
6. Equipment shall be designed to meet the preceding requirements over the full range of expected operating variations in the feed rate, ultimate analysis, heating value, ash content, moisture content, combustion air supply, flue gas flow rate and heat losses.
7. Continuous monitoring shall be provided for relevant temperatures, opacity and a combustion parameter representing the degree of combustion (preferably total hydrocarbons, but carbon dioxide acceptable); these monitors and control system shall be capable of readily signalling incorrect operations so that appropriate action can be taken.

The Ministry also requires that state-of-the-art air pollution control technology must be employed for all new refuse incineration facilities regardless of other regulatory requirements.

With respect to meeting the above requirements, the proponent's document makes the following representations:

Design Temperature

There is no explicit commitment to meeting the 1100°C requirement, although 1100°C is quoted on page 7 (in the summary) as the top end of the operating range.

Operating Temperature

The proponent consistently refers to 1800°F or 980°C as the minimum operating temperature rather than the Ministry's current requirement of 1000°C.

Residence Time

The proponent consistently refers to the requirement for a one second retention time, but again refers to the 980°C value rather than the present 1000°C criterion.

Residual Oxygen

The proponent refers to "150% excess air (250% stoichiometric air required for the refuse)" such as on page 3.20, but has not linked these values to the residual oxygen criterion.

Mixing in Secondary Chamber

The proponent does not address this requirement.

Design for Range of Operations

The proponent has not addressed any of the variables of concern with respect to the operation of the plant. The effect of two different heating values for the waste as fired has been examined in terms of the resulting flue gas flows and their effect on dispersion using the Regulation 308 calculations. The effect of the other variables on emission characteristics and control system performance (due to effects on incinerator operation) has not been explored.

Control and Monitoring

The proponent proposes (on page 7.6) to monitor the following parameters in the stack: HCl, opacity, carbon monoxide, temperature and either carbon dioxide or oxygen. In addition, it was proposed to monitor the temperatures of both the primary and secondary chambers, as well as measure flue gas flow rates by pitot tube (location unspecified). With respect to secondary chamber temperature monitoring, it is also stated on page 3.20 that two thermocouples will be installed in this area, one at the exit itself for use in

controlling exit gas temperature and one at the location where a one second retention time is ensured (which might be somewhat downstream toward the boiler).

It should be noted that the purpose of the specified continuous monitors is to ensure good control of the inciner-

ators rather than to specifically demonstrate compliance with Regulation 308 requirements for point of impingement concentrations. A single set of monitors installed in the stack shared by all four incinerators will not likely accomplish this; there are obvious difficulties in establishing which unit is performing poorly. The carbon dioxide/oxygen, carbon monoxide and opacity monitors should be installed on each incinerator. Likewise, the thermocouple meant to be associated with a one second retention time should be clearly associated with an individual unit; it should be located upstream of any confluence of exhausts (i.e. the boiler inlet plenum).

The proponent has not justified the selection of carbon monoxide rather than the preferred hydrocarbon monitoring. The proponent has also not indicated whether these instruments will be integrated into the process control system and how records of the monitored data are to be kept.

J. State-of-the-Art Air Pollution Control

The proponent has committed to use a lime injection/fabric filter emission control system similar to that declared to constitute the state-of-the-art for such sources. However, the proponent has committed to only 80% HCl removal whereas such systems have been reported to routinely remove greater than 90% of the HCl. The proponent has also committed to an emission limit for HCl which is stated as 1.75 kg HCl/t of municipal solid waste processed. Since data from other installations show that uncontrolled HCl emissions range up to 3.1 kg/t, the guaranteed emission limit is equivalent to 45% removal at best. A guaranteed particulate emission limit of 0.075 kg/t, however, represents good particulate control. All other contaminants are simply required to meet the requirements of Regulation 308 (see page 4.13 for summary).

It may be noted that the proponent has misconstrued the time basis for the limit on hydrocarbons which is stated on several occasions within the report as a 30 minute average. The 100 ppm limit on hydrocarbons is set out in Section 12 of Regulation 308 quite separate from the 30 minute point of impingement standards as a 10 minute average. It is intended as a measure of completeness of combustion.

K. Applications for Certificates of Approval

It is noted that on page 2 of the "Notice to the Hearings Registrar Pursuant to Section 3, Subsection 1 of the Consolidated Hearings Act" (dated January 15, 1987) the proponent appears to be asking that the consolidated hearing address the matter of certificates of approval required under

the Environmental Protection Act. The degree of technical detail necessary for the Ministry to assess applications for such certificates is lacking in the present documents.

One example of the type of issue which would require further detail is the control of odourous emissions from the tipping area. While taking combustion air from the building interior will aid in this respect, the opening of the overhead doors for truck access to the tipping area will disrupt the ability of the air supply fans to maintain a negative pressure in the building. In similar plants, e.g. the Victoria Hospital facility under construction in London, this difficulty is often overcome using a double door system or some form of air curtain. The text and diagrams supplied do not address this aspect.

L. Regulation 308 Concerns

It is incumbent upon the applicant for a certificate of approval under Section 8 of the Environmental Protection Act to establish that using the Regulation 308 calculations all relevant standards, tentative standards, guidelines and provisional guidelines are met by the proposed facility. The list of contaminants addressed in the proponent's document does not include all substances known to be emitted from such facilities for which limits have been established. Such an evaluation will be required in order to show that the proposed plan will comply with the requirements of the regulation.

In addressing the impact of the auxiliary boiler using Regulation 308, it is unclear which model was employed. It would be useful if the proponent would note the dispersion calculations used for each source evaluated and justify them against the requirements set out in the appendix to Regulation 308. The appropriate calculations would have to be reviewed before a Certificate of Approval may be issued under Section 8 of the Act.

The result of the proponent's assessment of air quality impacts using models proposed for use in a revised version of Regulation 308 must be interpreted with the greatest care. These models remain in a state of flux at this time and have not yet been officially adopted as the final version to be proposed. Any version ultimately adopted may yield higher or lower modelled results. As well, there remains some uncertainty in interpreting model results (currently one hour averages) against the existing point of impingement limits (half hour averages). Should firm proposals come forward during the review period before the Consolidated Hearings

Board or during the approvals process, it may be advisable for the proponent to review the proposal.

Finally, the Ministry's modelling staff have also noted transliteration errors in the presentation of the model equations within the report.

M. Alternatives to the Undertaking

The proponent should make reference to the Region of Peel's draft master plan in terms of waste management practices and tie the present study into the Peel study. It is the Ministry's opinion that EFWs must be evaluated on a case by case basis relating the relative merits of landfill versus incineration.

It is noted that Ontario Hydro's price given for energy from alternative generation sources has been increased from the 3.85 cents per kWh cited on page 2.4 to 4.94 cents per kWh. The proponent should address the impact of this change on the electricity-only option.

In addressing the steam-only option, the proponent should address the alternative to wasting generated steam when Domtar's demand is low, i.e. reducing steam generation and thus the incineration rate.

N. Alternative Methods

In terms of alternative methods, the proponent has not considered alternative technologies for generating energy from waste and has only provided a peripheral review of other incineration technologies. The Ministry feels that using the problems at the SWARU plant to reject suspension-fired facilities is not justifiable. The SWARU facility was a pioneering effort and much has been learned about the optimum operation and design of such facilities since then.

The other qualitative comparisons made between moving grate systems and modular controlled-air technology should be backed up with specific references. Such claims as the "popularity" of one technology against another, relative costs and operating complexity (which should be reflected by operating costs) are not substantiated. It might also be instructive to compare uncontrolled or pre-control emissions from modern plants using each of the three incinerator technologies when addressing this point.

Other types of engineering alternatives were also examined in the document. Several of these were not sub-systems of sufficient importance to merit separate treatment in this

- 16 -

part of the environmental assessment. As an example, the decision to use a single flue rather than a dual flue stack design is a comparatively minor engineering decision which could have been simply made and noted in the detailed description of the preferred alternative.

However, one "process" alternative was dealt with somewhat too briefly. The discussion of the baghouse bypass on pages 2.17 to 2.19 does not make a good case for this feature. As an example, it is possible to conceive a 4/3/3/1 configuration for the proposed plant which might combine the operational flexibility of the proposed 4/3/2/1 configuration, while reducing the potential for hour-long uncontrolled releases although at some additional cost. A discussion of experiences at the U.S. plants noted on page 2.14 which use the 4/3/2/1 configuration might be of some aid to clarify the situation. This issue could also have been combined into the discussion of the possible plant configurations.

Finally, in addressing alternative sites, the selection of Domtar as the steam customer is not raised. The question of alternative customers in the Region of Peel is relevant and the proponent likely could address this aspect by relating the appropriate portions of the Region's draft master plan.



W.R. Balfour

JGD/lh

Encls.



Ministry
of the
Environment

Ministère
de
l'Environnement

086

**ENVIRONMENTAL APPROVALS AND
LAND USE PLANNING BRANCH**

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323-4397

July 28, 1987

MEMORANDUM

TO: B.R. Ward, Director
Environmental Assessment Branch

FROM: W.R. Balfour
Director

RE: PETRO-SUN INTERNATIONAL INC./SNC
ENERGY FROM WASTE FACILITY
ENVIRONMENTAL ASSESSMENT
ADDENDUM TO THE EA



Ministry staff have reviewed the Petro-Sun International Inc./SNC document entitled "Addendum to EA Report Petro-Sun/SNC Resource Recovery Facility in the Regional Municipality of Peel" dated July, 1987. The following Branches submitted comments:

1. Environmental Approvals and Land Use Planning Branch.
2. Central Region.
3. Hazardous Contaminations Coordination Branch.
4. Air Resources Branch.
5. Spills Action Centre.
6. Policy and Planning Branch.

General Comments

MOE reviewers noted that because of the time limitations placed on the review, the above-noted document was reviewed in a cursory manner only; therefore, the reviewers tended to make broad comments which basically consisted of a search for answers to our comments on the formal EA document.

The addendum document like the original EA document makes comparisons of general statements without the support of illustrative data. Such unsupported statements are open to question. However, we believe that there remain no major problems with the documents received to date which cannot be resolved either at or before a hearing.

Ministry Requirements for Incinerators

Only one of the issues raised under this heading in the Ministry's original comments appears to have been completely addressed; this is the issue of mixing in the secondary chamber. In several cases it appears that the proponent may still not understand either the requirements of the Ministry or the basis for those requirements. The Ministry has particular concern about the proposed monitoring systems, the evaluation of the effect of variable operating parameters on the plant and several specific aspects of the proposed air pollution control system such as whether the proposed efficiency of HCl removal is truly state-of-the-art and other acceptable ways of dealing with upsets aside from uncontrolled by-passing.

Other Regulatory Aspects

The proponent no longer seeks approval under Section 8 of the Environmental Protection Act concurrent with the consolidated hearing. Thus, the technical detail necessary for evaluating approvals (that is, final engineering drawings and specifications) is not necessary. The proponent has provided some estimates of the emissions of a wider range of contaminants for evaluation against the requirements of Regulation 308. Because of the extremely limited time given to review these, the Ministry has not been able to verify the results.

Consideration Given to Alternatives

The Ministry considers that it would have been helpful if the proponent had referenced the Regional Municipality of Peel Master Plan to show how the proposed undertaking fits into it. However, the effects of Ontario Hydro's raising the purchase price for power from such facilities has been presented. The explanation of the steam-only option remains somewhat superficial and the alternative methods of generating energy from waste remain unaddressed. The alternative incineration technologies are compared in a more consistent fashion but only on the basis of general statements unsupported by illustrative data. The matter of alternative customers for this steam has not been dealt with in a clear manner.

Land Use Compatibility

Clarification has been provided in the addendum for part of the first point raised in the Ministry's original comments under this heading in that, depending upon the chosen alternative, residential land uses will be 1.5 to 2.5 km away from the EFW plant (page 48, second paragraph).

Concerning the Ministry's request for official plan designations within 2 km of all alternatives, on page 44, the third paragraph of the addendum indicates that zoning up to 2 km in most areas has been provided in Figure 5.3, with the addendum supplying a list of corresponding official plan

designations. The problem is that the reviewers cannot find Figure 5.3 in either the August 1986 EA or the addendum and feel that this information should be provided to confirm the land use situation. Figure 3.3 in the addendum has a corrected scale but does not indicate land use designations. We also note that the figures supplied are difficult to read.

Page 49 of the addendum states that modelling predicts no measurable effects beyond 3 km. The Ministry therefore expects impacts on other land uses up to 3 km to be adequately addressed for the preferred alternative once it is chosen.

Concerning the second point in the Ministry's original memorandum under the heading "Land Use Compatibility" the issue of distance from residential development of Site No. 3 has been clarified in the addendum although this alternative (and No. 1) has transferred hands and is no longer available (page 12, Section 2.3.5 of the addendum).

Social-Economic Concerns

The addendum has addressed the issue of potential social impacts in more detail and has given some recognition to the types of "special" social impacts which are often associated with waste facilities. The treatment of social impacts, however, remains incomplete and the conclusions that are drawn are not supported in the material presented. The major points are as follows:

1. The description of the potential types of social impacts that could result from the proposed alternatives is too brief to provide a useful basis for evaluation and in some cases is inaccurate. For instance, on page 45 the document states that the psychological effect of concerns about proximity to plant emissions "is obvious", without describing the effect. Evidence from other cases indicates that the psychological effects of concern about exposure to environmental contaminants are not necessarily obvious.

On the same page, the documented attributes public concerns about incineration facilities to knowledge about old or uncontrolled incinerators. Public concerns and fears about incinerators may be coloured in part by previous experience but are not primarily a function of the type of equipment or technology involved. Public fears are more directly a result of fears about toxic emissions at any level and a distrust of those responsible for operating and regulating facilities. This is not an insignificant point because Petro-Sun appears to be concluding that there will be no adverse psychological impacts on nearby residents because of the advanced plant design.

- 4 -

2. Tables 2.1 through 2.5 outline potential social/cultural effects for each alternative considered but provide too little information regarding the nature, likelihood or magnitude of such effects to provide a basis for evaluating the conclusions drawn regarding the significance of these effects.
3. In the section dealing with mitigation, the addendum states on page 46 that "as illustrated by Section 4.0 of the EA Report, all public concerns have been addressed". This conclusion is somewhat misleading because it implies that the issues raised by the public have been resolved. The EA documents present the proponent's responses to the public concerns but provide no indication that they have been resolved, i.e., that the public is satisfied with these responses.

The EA should address these points either by providing additional documentation to support the conclusions as stated or by revising the conclusions.

Organic Emissions

The Ministry is generally satisfied with the amendments to Appendix 7 contained in the addendum and have only one additional minor point to add. On page 55 of the addendum in the third paragraph, the document states "a further reference to this approach to human risk assessment is a summary by the method's originator, G. Eadon, et al (1986)". Dr. Eadon was probably not the originator of this method.

Noise Assessment

The Ministry notes that the comments presented in the Ministry's formal EA review have not yet been answered.

Contingency Planning

The Ministry's comments on contingency planning have not been adequately answered and, therefore, stand.



W.R. Balfour

JGD/lh



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Environment

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l'Environnement

090

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323-4497

ENVIRONMENTAL ASSESSMENT BRANCH
August 27, 1987

RECEIVED

AUG 27 1987

MEMORANDUM

OFFICE OF
THE DIRECTOR

TO: B.R. Ward
Director
Environmental Assessment Branch

FROM: W.R. Balfour
Director

RE: PETRO-SUN INTERNATIONAL INC./SNC
ENERGY FROM WASTE FACILITY
ENVIRONMENTAL ASSESSMENT
ADDITIONAL COMMENTS

This Branch has recently received additional comments from the Waste Management Branch on the Petro-Sun Environmental Assessment. As a result, we would like to include one additional comment in the Government review. We find the environmental assessment document incomplete since it does not address the impact the undertaking would have on the Regional Municipality of Peel's waste reduction program. Petro-Sun should investigate this issue and be prepared to provide the necessary information at the upcoming hearing. The Ministry believes that this can be accomplished by obtaining information from the Regional Municipality of Peel, demonstrating that its waste reduction initiatives, which include a curbside collection program, would not be constrained by the Petro-Sun undertaking.

The Ministry would appreciate obtaining the results of this investigation before the hearing.

W.R. Balfour

JGD/mc



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777 Bay Street
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091

February 6, 1987

Roger

MEMO TO: Roger Clarke
EA Branch Review Coordinator
Ministry of the Environment

RE: Petro Sun Internal EFW Facility
EA File #PR-BR-02

The discussion on air quality effects in section 6.2 appears inconclusive. Emission levels are given in another section (3.7) but are not compared with levels stated in Regulation 308 in so far as I can determine.

The result is, I am not assured air quality will be protected by the facility. Air quality is surely a key concern which deserves more straight forward treatment.

A handwritten signature in black ink, appearing to read "Wm. M.C. Wilson".

Wm. M.C. Wilson
Planner
Planning and Development

/mll

Attachment



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MEMORANDUM TO: Roger Clarke
Review Co-ordinator
Environmental Assessment Branch
Ministry of Environment

RE : Petro-Sun International
Energy From Waste Facility
Brampton

According to our records, two of the proposed sites (#1 and #4) are in the Parkway Belt. The other two are outside.

Properties in the Parkway Belt are subject to a Five-Year Review (currently underway) by the Ministry of Municipal Affairs. They should comment on the appropriateness of all the sites.


John Tamm
Environmental Planner

JT/nsn

SEARCHED

131-7

Roger

Full Text Coded



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July 13, 1987

MEMO TO: Ms. Peggy Farnsworth
Environmental Planner
Ministry of the Environment
Environmental Assessment Branch
7th Floor, 135 St. Clair Avenue West
Toronto, Ontario
M4V 1P5

SUBJECT: Addendum to Petro Sun EFW Facility, Peel
E.A. File #PR-BR-C2

ENVIRONMENTAL ASSESSMENT
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JUL 17 1987

TO Peggy F.

EA FILE # _____

PUBLIC RECORD
FULL TEXT

I believe my concerns originally stated on February 2, 1987 regarding air quality effects are satisfactorily addressed in the addendum by the proponent. Truck traffic, an additional concern I subsequently had, also is addressed satisfactorily.

Therefore on behalf of the Ministry of Government Services and Housing, I believe the proposal is acceptable from an Environmental Assessment point of view.

From an M.G.S. property point of view, you will have further dealings with our Land Management Branch in connection with the Provincially owned site (Site 2).

Wm. M.C. Wilson
Environmental Coordinator
Land Development Branch

/mll

cc: Ms. L. Haughton
Mr. B. Crowe



Ontario

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of
Health Ministère
de
la Santé

(416) 963-2229

Fifth Floor

15 Overlea Blvd.

Toronto, ONTARIO M4H 1A9

ENVIRONMENTAL ASSESSMENT
BRANCH

RECEIVED

APR 22 1987

TO Roger

FILE # _____

FULL TEXT

PUBLIC RECORD

April 10, 1987

MEMORANDUM TO: Mr. Roger Clarke
Review Coordinator
Environmental Assessment Branch
Ministry of the Environment

FROM: Barbara J. Blake, M.D., D.P.H.
Director
Public Health Branch

RE: Petro-Sun International
Energy from Waste Facility, Brampton
Regional Municipality of Peel
Your EA File No. PR-BR-02

This is in reply to your memorandum of February 2, 1987 requesting our comments on the above-noted E.A. Branch staff have studied the E.A. and Appendices.

We note that equipment is proposed for monitoring specific stack emission parameters. Heavy metal and chlorine-organic compound concentrations in the air adjacent to the facility site should be added to the list of parameters to be monitored. The details of such monitoring program should satisfy your Ministry's criteria and should be included in the agreement between the Proponent and the Regional Municipality of Peel.

We note that Dr. Peter N. Cole, Medical Officer of Health, Peel Regional Health Unit is on your Ministry's list of reviewers for this project. This is satisfactory.

PJB/lb

cc: Dr. Peter N. Cole, MOH



Ontario

095

Ministry of Health Ministère de la Santé (416) 963-2229

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July 16, 1987

ENVIRONMENTAL ASSESSMENT BRANCH	
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nment TEXT <input type="checkbox"/>	

MEMO TO: Peggy Farnsworth
Environmental Planner
Environmental Assessment
Ministry of the Environment

FROM: Barbara J. Blake, M.D., D.P.H.
Director
Public Health Branch

RE: ADDENDUM TO PETRO-SUN/SNC RESOURCE
RECOVERY FACILITY IN THE REGIONAL
MUNICIPALITY OF PEEL ENVIRONMENTAL
ASSESSMENT
EA FILE NO. PR-BR-02

Thank you for the opportunity of commenting on the above noted report forwarded to our office under the date July 8, 1987.

With the possible exception of the comments that may be made by the Medical Officer of Health for the area concerned, the proposal outlined does not appear to present any negative impact on the other programs and policies of our Ministry.

1012a



Ontario

Ministry of
Industry, Trade
and Technology

February 12, 1987

Province of Ontario
Hearst Block
Queen's Park
Toronto, Ontario
Canada M7A 2E1Cable Address:
Tradin-Toronto
Telex: 06219786

Memorandum to: Mr. Roger Clarke
Review Co-ordinator
Environmental Assessment Branch
Ministry of Environment

From: Mr. J. R. Delaney
Manager
Plant Location and
Municipal Liaison

Subject: Petro-Sun International
EA File NO. PR-BR-02

This project falls outside the purview of this Ministry,
and since we cannot provide any technical input, we will
be making no further comments. We are returning the
documents for your use.


J. R. Delaney/vh

JRD/vh



Ontario
Ministry of
Labour

Ministère
du Travail
de l'Ontario

097

Occupational
Health and Safety
Division

Division de la santé
et de la sécurité au
travail

ENVIRONMENTAL ASSESSMENT
400 University Ave
Toronto, Ontario
M7A 1T7
BRANCH

RECEIVED

MAR 6 1987

TO _____

EA FILE # _____

FULL TEXT

PUBLIC RECORD

March 2, 1987

MEMORANDUM TO: Roger Clarke
Review Coordinator
Environmental Assessment Branch
Ministry of the Environment

FROM: A. D. Heath
Director
Standards and Programs Branch

RE: PETRO-SUN INTERNATIONAL, ENERGY FROM
WASTE FACILITY, BRAMPTON REGIONAL
MUNICIPALITY OF PEEL, EA FILE NO. PR-BR-02

You have asked for comments on the Petro-Sun International Energy Waste Facility Environmental Assessment.

The planning, implementation and operational procedures for this project should set out clearly the need for compliance with the Occupational Health and Safety Act R.S.O. 1980, c.321 (the Act) and the regulations made thereunder.

The Act places duties on owners, constructors, employers, supervisors, workers and suppliers. Requirements with respect to work procedures, equipment, the use of protective devices, the measures to be taken in specific instances and the control of biological, chemical and physical agents are detailed in the regulations made under the Act.

Attached for your information is a list of regulatory initiatives which sets out all regulations now in force, proposed regulations in process, and substances for which a notice of possible designation has been published.

Attachment



Ministry of
Municipal
Affairs

Ministère des
Affaires
municipales

Office of Local Planning Policy
777 Bay Street, 13th floor
Toronto, Ontario
M5G 2E5

International Year of
Shelter for the Homeless
1987

Année internationale
logement des sans-abri

585-6228

ENVIRONMENTAL ASSESSMENT
BRANCH

RECEIVE.

March 24, 1987

MEMORANDUM TO: Roger Clarke
Review Co-ordinator
Environmental Assessment Branch
Ministry of the Environment

TO Roger C.
EA FILE #
 FULL TEXT
 PUBLIC RECORD

FROM: Ron Kennedy, MCIP
Senior Planner

RE: Petro-Sun International EFW Facility
EA File No. PR-BR-02

The Ministry of Municipal Affairs has reviewed this environmental assessment and has the following comments.

The assessment has considered the relationship of the undertaking with our policies and programs, specifically the provisions of the Parkway Belt West Plan, in an acceptable manner. However, while the land use planning component of the site selection process has included the relationship of the alternative sites with the planning programs of the affected municipalities, there is one aspect of this analysis which appears to be missing from the discussion. The assessment is quite thorough in its discussion of the various plan and zoning provisions which affect each of the sites, as well the possible impacts of the undertaking on existing land uses in the vicinity of the sites. The discussion does not seem to address the extent of compatibility or conflict between the project and future land uses in its vicinity as anticipated by the official plans of the two municipalities. This should be included in the assessment in order to allow for a more complete consideration of the impacts of the facility. Given the documented involvement of the municipal planning departments in this project, this information should be readily available.

If you have any questions on this matter, please feel free to call me at 585-6228.

R.R. (Ron)

Ron Kennedy

**REGULATORY INITIATIVES UNDER THE
OCCUPATIONAL HEALTH AND SAFETY ACT**

**Regulations made under the Occupational Health and Safety Act
Revised Statutes of Ontario, 1980, Chapter 321.**

Acrylonitrile:	O. Reg. 733/84 as amended by O. Reg. 23/87.
Arsenic:	O. Reg. 176/86 as amended by O. Reg. 23/87.
Asbestos:	O. Reg. 570/82 as amended by O. Reg. 655/85, O. Reg. 23/87.
Asbestos on Construction Projects and in Building and Repair Operations:	O. Reg. 654/85.
Benzene:	O. Reg. 732/84 as amended by O. Reg. 23/87.
Biological or Chemical Agents, Control of Exposure to:	O. Reg. 654/86 as amended by O. Reg. 707/86.
Coke Oven Emissions:	O. Reg. 517/82 as amended by O. Reg. 23/87.
Construction Projects:	R.R.O. 1980, Reg. 691 as amended by O. Reg. 635/86.
Critical Injury Defined:	O. Reg. 714/82.
Diving Operations:	O. Reg. 634/86.
Elevated or Suspended Work Places on Building Facades:	O. Reg. 156/84.
Fire Fighters Protective Equipment:	O. Reg. 125/83.
Industrial Establishments:	R.R.O. 1980, Reg. 692.
Isocyanates:	O. Reg. 455/83 as amended by O. Reg. 23/87.
Lead:	O. Reg. 536/81 as amended by O. Reg. 23/87.
Mercury:	O. Reg. 141/82 as amended by O. Reg. 23/87.
Mines and Mining Plants:	R.R.O. 1980, Reg. 694 as amended by O. Reg. 226/83, O. Reg. 569/83, O. Reg. 365/86, O. Reg. 450/86, O. Reg. 569/86, O. Reg. 654/86. O. Reg. 633/86.
Oil and Gas-Offshore:	O. Reg. 769/83 as amended by O. Reg. 23/87.
Silica:	O. Reg. 191/84.
Teachers: University Academics and Teaching Assistants:	O. Reg. 307/84.
Vinyl Chloride:	O. Reg. 516/82 as amended by O. Reg. 23/87.
X-Ray Safety:	O. Reg. 632/86.
Inventory of Agents or Combinations of Agents for the Purpose of Section 21 of the Act:	R.R.O. 1980, Reg. 693.

For a complete reference to the Regulations made under the Occupational Health and Safety Act, recourse should be made to the Annual Consolidated Index to the Regulations of Ontario.

Over...

Proposed regulations in process

Cadmium
Chromium
Coal Tar on Construction Projects
Construction Projects - Proposed Amendments to Regulation
Ethylene Oxide
Formaldehyde
Health Care Facilities
Isocyanates on Construction Projects
Lead on Construction Projects
Mercury - Proposed Amendment to Regulation
Noise
Roll-over Protective Structures
Silica on Construction Projects and Aggregate Production
Styrene
Welding and Cutting Operations, Fumes and Gases in
Window Cleaning

Notices of possible designation published in The Ontario Gazette

Coal Tar Products
Nickel
Polychlorinated Biphenyls (PCBs)
Solvents*

* Includes a draft regulation



Ontario

Ministry of
Municipal
Affairs

Ministère des
Affaires
municipales

Office of Local Planning Policy
777 Bay Street, 13th floor
Toronto, Ontario
M5G 2E5

International Year of
Shelter for the Homeless

Année internationale du
logement des sans-abri

100

585-6228

ENVIRONMENTAL ASSESSMENT
BRANCH

RECEIVED

JUL 27 1987

TO Peggy Farnsworth

EA FILE #

PUBLIC RECORD
FULL TEXT

July 22, 1987

MEMORANDUM TO: Peggy Farnsworth
Review Co-ordinator
Environmental Assessment Branch
Ministry of the Environment

FROM: Ron Kennedy, MCIP
Senior Planner

RE: Addendum to Petro-Sun/SNC
Resource Recovery Facility

In reply to your recent memorandum, this Ministry has reviewed the addendum and finds that it responds satisfactorily to the comments made in our earlier correspondence. Accordingly, we have no further comments to provide on the assessment.

R. L. Kennedy



Ministry of
Natural
Resources Ministère des
Richesses
naturelles

(J.F.C.)
(E.F.-E)

101

May 20, 1987

ENVIRONMENTAL ASSESSMENT
BRANCH

RECEIVED

MAY 22 1987

TO _____

EA FILE # PR-BR-02

PUBLIC RECORD

FULL TEXT

Our ref: 8538.8.63

MEMORANDUM TO:

Director
Environmental Assessment Branch
Ministry of the Environment
135 St. Clair Avenue West, 7th Floor
Toronto, Ontario
M4V 1P5

Attention: Mr. R. Clarke

SUBJECT: Petro-Sun Environmental Assessment

This ministry has reviewed this application and have no objection to the presentation, interpretation or conclusions derived from the information that we originally provided to the consultant.

We recognize that the final site selection will possibly result in the exclusion of site No.4, which is the area of concern for this agency, because of the potential impact on Etobicoke Creek.

We have provided this shortened version of a response in an attempt to meet the prescribed deadlines.

J. Earl
I.B. Earl

District Manager
Maple District
10401 Dufferin Street
Maple, Ontario
L0J 1E0

Telephone: 416-832-7222

PW:af



Ministry of Natural Resources Ministère des Richesses naturelles

102

July 21, 1987

MEMORANDUM TO:

Director
Environmental Assessment Branch
Ministry of the Environment
135 St. Clair Avenue West, 7th Floor
Toronto, Ontario
M4V 1P5

Attention: Ms. Peggy Farnsworth

SUBJECT: Petro-Sun/SNC addendum
Your file # PR-BR-02

Our ref.: 8538.8.63

ENVIRONMENTAL ASSESSMENT BRANCH
RECEIVED
JUL 24 1987
TO <u>Peggy</u>
EA FILE # <u> </u>
PUBLIC RECORD <input type="checkbox"/>
FULL TEXT <input type="checkbox"/>

The Maple District of the Ministry of Natural Resources has reviewed this addendum and it does not present any obstacles to the programs or policies of this agency.

As we indicated in our letter of May 20, 1987 the selection of site #4 would concern this ministry because of the proximity to Etobicoke Creek. We would require detailed drawings and site plans with assurances that during construction all plausible safeguards be employed to minimize soil erosion and stormwater movement of sediment. Post Construction details relating how stormwater runoff and sediment control would be conducted would require our approval prior to instigation.

These concerns do not constitute an objection, but would require that the approval conditions incorporate these requirements.

C. B. Earl
I.B. Earl
District Manager
Maple District
10401 Dufferin Street
Maple, Ontario
L0J 1E0

Telephone: 416-832-7222

PW
PW:tp



Ontario

103

FILE PR-~~BR~~ 02

Ministry of
the Solicitor
General

HUMAN
RESOURCES
SERVICES
BRANCH

416/965-4380

11th Floor
25 Grosvenor Street
Toronto, Ontario
M7A 1Y6

April 22, 1987

MEMORANDUM TO : Mr. Roger Clarke,
Review Coordinator,
Environmental Assessment Branch,
Ministry of Environment,
135 St.Clair Avenue West, Suite 100,
TORONTO,
ONTARIO.
M4V 1P5

Dear Mr. Clarke,

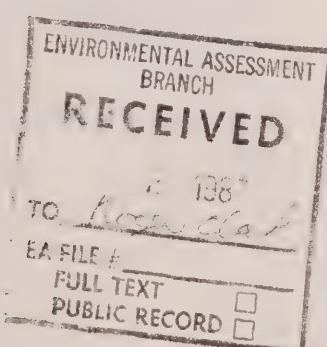
RE: PETRO-SUN /ENERGY FROM WASTE FACILITY/BRAMPTON.

Enclosed is the response from the Office of the Fire Marshal of Ontario on the above subject. The Ontario Provincial Police has sent their response to directly through their memo dated February 18, 1987.

We have nothing further to add in the matter.

yours truly,


Lynn Ceglar.
Director.





Ontario

101

RECEIVED

MAR 16 1987 2:39

RCM - RECORDED

File PR-~~EE~~-02
P3

Ministry of the Solicitor General	Office of the Fire Marshal	Public Safety Division	7 Overlea Blvd., 3rd Floor Toronto, Ontario M4H 1A8
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March 16, 1987

681 28
Telephone: 965-4851

Ms. Lynn Ceglar
Director
Management Services Branch
Ministry of the Solicitor General
25 Grosvenor Street
Toronto, Ontario
M7A 1Y6

Re: Petro-Sun/SNC Resource Recovery Facility in
the Regional Municipality of Peel

Dear Ms. Ceglar:

The Region of Peel Solid Waste Management Plan is at the preliminary report stage. The Stage 3 report was reviewed on February 9, 1987, with a letter drafted on that date. This submitted document addresses the second portion of the plan, "Burning Garbage to Generate Energy".

As mentioned in our letter of February 9th, this burning will be done under controlled conditions in an industrial building. Only non-hazardous municipal solid waste will be burned. Steam and electricity will be generated for sale.

Construction and operation of this facility does not impact on the mandate of this Office. We are satisfied with the submission and have no concerns with its content.

Yours very truly,

Roy Philippe, P. Eng.

Chief
Technical Research and
Consulting Services

RP:io

cc: C.J.A. Cole,
Director-Superintendent
Policy and Planning Branch, O.P.P.



105

Ministry of the Office of the Public 7 Overlea Blvd., 3rd Floor
Solicitor Fire Safety Toronto, Ontario
General Marshal Division M4H 1A8

March 16, 1987

681 28
Telephone: 965-4851

Ms. Lynn Ceglar
Director
Management Services Branch
Ministry of the Solicitor General
25 Grosvenor Street
Toronto, Ontario
M7A 1Y6

Re: Petro-Sun/SNC Resource Recovery Facility in
the Regional Municipality of Peel

Dear Ms. Ceglar:

The Region of Peel Solid Waste Management Plan is at the preliminary report stage. The Stage 3 report was reviewed on February 9, 1987, with a letter drafted on that date. This submitted document addresses the second portion of the plan, "Burning Garbage to Generate Energy".

As mentioned in our letter of February 9th, this burning will be done under controlled conditions in an industrial building. Only non-hazardous municipal solid waste will be burned. Steam and electricity will be generated for sale.

Construction and operation of this facility does not impact on the mandate of this Office. We are satisfied with the submission and have no concerns with its content.

Yours very truly,


Roy Philippe, P. Eng.

Chief
Technical Research and
Consulting Services

RP:io

cc: C.J.A. Cole,
Director-Superintendent
Policy and Planning Branch, O.P.P.



Ontario

681 28

Ministry of the
Solicitor
General

Office of the
Fire
Marshal

Public
Safety
Division

7 Overlea Blvd., 3rd Floor
Toronto, Ontario
M4H 1A8

July 14, 1987

Ms. Peggy Farnsworth
Ministry of the Environment
135 St. Clair Avenue W.
Suite 100
Toronto, Ontario
M4V 1P5

ENVIRONMENTAL ASSESSMENT BRANCH	
RECEIVED	
JULY 14 1987	
TO	Peggy
EA FILE #	
PUBLIC RECORD <input type="checkbox"/>	
FULL TEXT <input type="checkbox"/>	

Telephone:

Re: Addendum to Petro-Sun/SNC Resource Recovery Facility in the Regional Municipality of Peel Environmental Assessment EA File No. PR-BR-02

Dear Ms. Farnsworth:

We have reviewed the above addendum, which is a follow up to an earlier submission which we responded to on March 16, 1987. At that time we had no concerns with the proposal.

This addendum does not create any new concerns for this Office. We have no objections to the proposal.

Yours very truly,

R. R. Philippe
R. R. Philippe, P. Eng.
Chief
Technical, Research and
Consulting Services

RC/cf
cc: C.J.A. Coles, O.P.P.



Ontario Provincial Police

Ministry of the Solicitor General

107
90 Harbour Street
Toronto, Ontario
M7A 2S1
Telephone:
965-2542

File reference:

145 30
159 875-063
BRANCH

February 18, 1987

Ministry of the Environment
135 St. Clair Ave. West
Suite 100
Toronto, Ontario
M4V 1P5

RECEIVED

FEB 26 1987

TO Roger C.
EA FILE #
 FULL TEXT
 PUBLIC RECORD

Attention: Mr. Roger Clarke
Review Coordinator
Environmental Assessment Branch

Dear Mr. Clarke:

RE: PETRO-SUN
ENERGY FROM WASTE FACILITY,
BRAMPTON, ONTARIO
EA FILE PR-BR-02

The Environmental Assessment document outlining the above venture has been reviewed by members of this Branch.

We have not identified any concerns respecting the delivery of police service. Due to the fact, however, that all of the components in the proposed process are confined to the cities of Mississauga and Brampton, any contingencies surrounding transportation and emergency procedures should be pursued with the appropriate municipal authorities.

Yours truly,

(Signature)
C.J.A. Coles, Superintendent
Director
Policy and Planning Branch

LA/lf

c.c. Ms. Lynn Ceglar, Director
Human Resources Services Branch



Ontario Provincial Police

Ministry of the Solicitor General

108

90 Harbour Street
Toronto, Ontario
M7A 2S1
Telephone:

965-2542

File reference:

145 00

ENVIRONMENTAL ASSESSMENT BRANCH
RECEIVED
JUL 17 1987
TO <u>Peggy</u>
EA FILE #
PUBLIC RECORD <input type="checkbox"/>
FULL TEXT <input type="checkbox"/>

13 Jul 87

Ministry of the Environment
135 St. Clair Ave. West
Suite 100
Toronto, Ontario
M4V 1P5

Attention: Ms. Peggy Farnsworth
Environmental Planner
Environmental Assessment Branch

Re: Petro-Sun
EFW Facility
EA File PR-BR-02

Dear Ms. Farnsworth:

Members of this Branch have reviewed the addendum to the Environmental Assessment document for the above facility.

On page 34 of the document, reference is made to accepting certain types of industrial waste for incineration. If the proponent intends to accept any industrial waste, the transportation of which is regulated by statute, we suggest that the appropriate municipal authorities be consulted.

Yours truly,

C.J.A. Coles
C.J.A. Coles, Superintendent
Director
Policy and Planning Branch

LVA/eyk



Ontario

Office of the
Deputy Minister

Ministry of
Transportation and
Communications

1987 03 04

103
Public File
East Building
1201 Wilson Avenue
Downsview Ontario
M3M 1J8
416/248-3664
235-4449

Mr. R.M. McLeod
Deputy Minister
Ministry of the Environment
135 St. Clair Avenue West
Toronto, Ontario
M4V 1P5

Dear Rod:

Re: Petro-Sun International
Energy from Waste Facility, Brampton
E.A. File No. PR-BR-02

R E C E I V E D
ENVIRONMENT

MAR 06 1987

DEPUTY
MINISTER'S OFFICE

This Ministry has reviewed the subject environmental assessment document and our comments are outlined in the attached review prepared by Mr. R.C. Hodgins, Manager, Environmental Office.

This is to advise that I concur with the noted review.

Yours sincerely,

A handwritten signature in black ink that reads "David Hobbs".

David Hobbs
Deputy Minister

Attachment

MINISTRY OF TRANSPORTATION AND COMMUNICATIONS

REVIEW OF ENVIRONMENTAL ASSESSMENT REPORT

1987 03 04

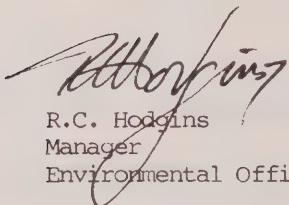
Re: Petro-Sun International
Energy from Waste Facility, Brampton
E.A. File No. PR-BR-02

ASSESSMENT OF PROPOSAL RELATIVE TO MINISTRY'S PROGRAMS

The Ministry has no comments or concerns regarding the subject environmental assessment document. There is, therefore, no objection to the approval of the undertaking.

ADDITIONAL INFORMATION/OTHER MATTERS, ETC.

N/A



R.C. Hodgins
Manager
Environmental Office

RCH/RMG/lo



Ontario

Office of the
Deputy Minister

Ministry of
Transportation and
Communications

111
Peggy
@ file
RECEIVED
ENVIRONMENT
JUL 29 1987 East Building
1201 Wilson Avenue
Downsview Ontario
M3M 1J8
07D2902 DEPUTY 416 206-3204
MINISTER'S OFFICE 235-4449

87 07 21

Mr. R.M. McLeod
Deputy Minister
Ministry of the Environment
135 St. Clair Avenue West
Toronto, Ontario
M4V 1P5

Dear Rod:

Re: Addendum To Environmental Assessment Report
Petro-Sun/SNC Resource Recovery
Facility In The Regional Municipality of Peel
EA File No. PR-BR-02

This Ministry has reviewed the subject document and our comments are outlined in the attached review prepared by Mr. R.C. Hodgins, Manager, Environmental Office.

This is to advise that I concur with the noted review.

Yours sincerely,

G. W. Hobbs
f/ David Hobbs
Deputy Minister

Attachment



Ontario

114

Ministry of
Transportation and
Communications

MINISTRY OF TRANSPORTATION AND COMMUNICATIONS

REVIEW OF ENVIRONMENTAL ASSESSMENT REPORT

87 07 21

Re: Addendum To Environmental Assessment Report
Petro-Sun/SNC Resource Recovery
Facility In The Regional Municipality of Peel
EA File No. PR-BR-02

ASSESSMENT OF PROPOSAL RELATIVE TO MINISTRY'S PROGRAMS

The Ministry has no comments or concerns regarding the subject environmental assessment addendum document. There is, therefore, no objection to the approval of the undertaking.

ADDITIONAL INFORMATION/OTHER MATTERS, ETC.

N/A

A handwritten signature in black ink that appears to read "R.C. Hodgins".

R.C. Hodgins
Manager
Environmental Office

RCH/DP/ad



Regional Engineering
Energy & Environment
Suite 503
277 Front Street West
Toronto, Ontario
M5V 2X7

23 March 1987

Our File: 3635-53 ENVIRONMENTAL ASSESSMENT
BRANCH

RECEIVED

1387

TO	R. J. Spence
FILE #	
FULL TEXT	<input type="checkbox"/>
PUBLIC RECORD	<input type="checkbox"/>

Ministry of Environment
135 St. Clair Avenue West
Suite 100
Toronto, Ontario
M4V 1P5

Attention: Mr. Roger Clarke, Review Co-ordinator
Environmental Assessment Branch

Dear Sir

Re: Energy from Waste Facility - Petro - Sun International -
Regional Municipality of Peel

Thank you for providing us with copies of the Reports on the proposed facilities.

It is understood that this resource recovery facility will form part of the Regional Municipality's Waste Management Master Plan to reduce the amount of solid waste to be landfilled.

The Railway offers no environmental objections to locating the facility at any of the four candidate sites in the vicinity of the Domtar Plant on Bramalea Road. As access to Site No. 2 will necessitate the crossing of the rail siding serving Domtar, a further detailed site plan should be provided to the Railway if this site is selected. The introduction of at least 120 trucks over this track poses a potential safety risk which can be reduced if safety devices and modern rail grade crossing materials are considered.

Yours truly

R. J. Spence, P. Eng.
Environmental Protection Officer

EW/T17104

700 University Avenue, Toronto, Ontario M5G 1X6

March 25, 1987

File: 00541 P
WP#8712

Mr. Roger Clarke
Review Coordinator
Environmental Assessment Branch
Ministry of the Environment
135 St. Clair Avenue West
Suite 100
Toronto, Ontario
M4V 1P5

Roger

Dear Mr. Clarke:

Re: Petro-Sun/SNC
Energy from Waste Facility-Brampton:
Environmental Assessment

We have completed a review of the subject document and offer the following comments.

The alternative site locations (4 sites) for the EFW facility are situated close to Ontario Hydro's Claireville TS x Bramalea TS x Milton TS right-of-way and Bramalea TS (not Brampton TS, as mentioned in the EA). We have a continuing requirement for our facilities in this area which are summarized below:

- Claireville TS x Milton TS - 2x500 kV 2 cct lines;
- Claireville TS x Bramalea TS - 1x230 kV 2 cct line;
- Bramalea TS - 1x230-44 kV DESN
- 1x230-27.6 kV DESN

Our future plans are, subject to obtaining the appropriate approvals, to add a second 230 kV 2 cct line on the subject right-of-way from Claireville TS to Milton TS and a third DESN at Bramalea TS.

The proposed development should not jeopardize our operation and maintenance of the above facilities. However, Ontario Hydro requests the opportunity to review the final design of the facility to ensure no impact on our existing or planned transmission facilities.

We also wish to acknowledge that communication has taken place between Petro-Sun and Ontario Hydro's Market Services and Development Division, regarding Petro-Sun's proposal to sell electricity to Ontario Hydro (Section 2.2.3). Ontario Hydro would be committed to purchase power upon receiving written notice from Mississauga Hydro, indicating that they would not be interested in making the purchases. A draft Purchase Agreement for the subject project was sent from Ontario Hydro (A.G. Barnstaple) to Petro-Sun (J.T. Pappain) March 9, 1987.

Mr. Roger Clarke

March 25, 1987

I trust these comments will be helpful to you.

Sincerely,



R.A. Brown
Director - Design & Development -
Transmission Division

700 University Avenue, Toronto, Ontario M5G 1X6



July 17, 1987

File No. 00541 P
WP #8779

Peggy Farnsworth
Environmental Assessment Branch
Ministry of the Environment
Suite 100
135 St. Clair Avenue West
Toronto, Ontario
M4V 1P5

Dear Ms. Farnsworth:

Re: Petro-Sun/SNC Resource Recovery
Plant Addendum to Environmental Assessment

Thank you for sending a copy of the above addendum. As indicated to you verbally on July 17 by Mr. Stewart Sears, we have no additional comments to add at this time.

I would reiterate that Petro-Sun/SNC should continue to liaise with our Market Services and Development Division (Mr. A.G. Barnstaple) regarding the proposed sale of electricity to Ontario Hydro.

Sincerely,

A handwritten signature in black ink, appearing to read "R.A. Brown".

R.A. Brown
Director
Design & Development - Transmission Division

The Regional Municipality of Peel

Health Department
ENVIRONMENTAL ASSESSMENT
BRANCH
ECEIV.

March 24, 1987

120187

TO <u>Roger Clarke</u>
EA FILE #
<input type="checkbox"/> FULL TEXT
<input type="checkbox"/> PUBLIC RECORD

Mr. Roger Clarke,
Review Coordinator,
Environmental Assessment Branch,
Ministry of the Environment,
135 St. Clair Avenue West,
Suite #100,
Toronto, Ontario,
M4V 1P5

Re: PETRO-SUN INTERNATIONAL
ENERGY FROM WASTE FACILITY, BRAMPTON
REGIONAL MUNICIPALITY OF PEEL
EA FILE No. PR-BR-02

Dear Mr. Clarke:

Thank you for the opportunity to review and comment on the above mentioned EA.

Peel Regional Council is presently involved in a public consultation process. In this regard, public meetings have been scheduled for April 21st, and April 22nd.

It is expected that Council will debate the Petro-Sun proposal and the agreement with the Region of Peel later in the month of April or in May. With the completion of the public consultation process, and the Council debate, a consolidated Regional response including comments from the Health Department will be forwarded.

Yours truly,

Peter N. Cole

Peter N. Cole, M.D.,
Commissioner and Medical Officer of Health.
CGC:tml
c.c. Don Markle

The Regional Municipality of Peel

Health Department

July 15, 1987.

Mr. Roger Clarke,
Review Coordinator,
Environmental Assessment Branch,
Ministry of the Environment,
135 St. Clair Avenue West,
Suite #100,
Toronto, Ontario,
M4V 1P5

ENVIRONMENTAL ASSESSMENT BRANCH	
RECEIVED	
JUL 30 1987	
TO	<i>Peter N. Cole</i>
EA FILE #	<u>PR-BR-02</u>
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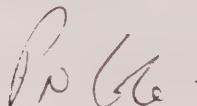
Re: **Petro Sun International
Energy from Waste Facility, Brampton
Regional Municipality of Peel,
EA File No. PR-BR-02**

Dear Mr. Clarke:

This is further to our letter of March 24th, 1987.

We have no objection or unfavourable comment regarding the EA documents, and accordingly, have no objection to this initiative proceeding through the various stages of the Environmental Assessment process. Any additional input from my office will be included in the Regional Municipality of Peel's position, which we expect will be made clear at the hearing.

Yours truly,



Peter N. Cole, M.D.,
Commissioner and Medical Officer of Health.
CGC:tml
c.c. D. Markle, P. Eng.

APPENDIX 2

- A) PROPOSER'S SUMMARY OF THE PETRO-SUN
INTERNATIONAL INC./SNC ENVIRONMENTAL ASSESSMENT
- B) LETTER TO MINISTRY AMENDING THE UNDERTAKING

FORM I**ENVIRONMENTAL ASSESSMENT ACT
SUMMARY FORM FOR AN EA SUBMISSION**

Re: An Environmental Assessment received from the Petro-Sun International Inc./SNC Consortium (Petro-Sun/SNC) for the construction and operation of a resource recovery from waste facility and associated energy distribution system to be located on Bramalea Road (north of Derry Road and south of Steeles Avenue) in the Regional Municipality of Peel.

Environmental Assessment Number P1 File 2

RESUME:**1.0 PURPOSE OF UNDERTAKING (Section 1 in EA Report)**

The purpose of the undertaking is to construct and operate a resource recovery facility (Figure 3) which will generate and supply energy through the incineration of municipal solid waste. Energy will be provided in the form of steam to Domtar's packaging plant on Bramalea Road and/or in the form of electrical energy to the Brampton Transformer Station.

2.0 DESCRIPTION OF THE UNDERTAKING (Section 3 in EA Report)

Several alternative sites (Figure 4) are being investigated along Bramalea Road (between Derry Road and Steeles Avenue). In general, the site area can be characterized as a developing industrial park with dwindling areas of agricultural production. The alternative sites are separated from residential zones by a minimum of 1,500 m.

Energy will be generated through the incineration of 364 tonnes (400 tons) per day of non-hazardous, municipal solid waste (MSW). The majority of this fuel will be obtained through contractual arrangements with the Regional Municipality of Peel. The plant will reduce the Region's landfill requirements by about 17% of the present volume.

FIGURE 3

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Artists Concept of Plant

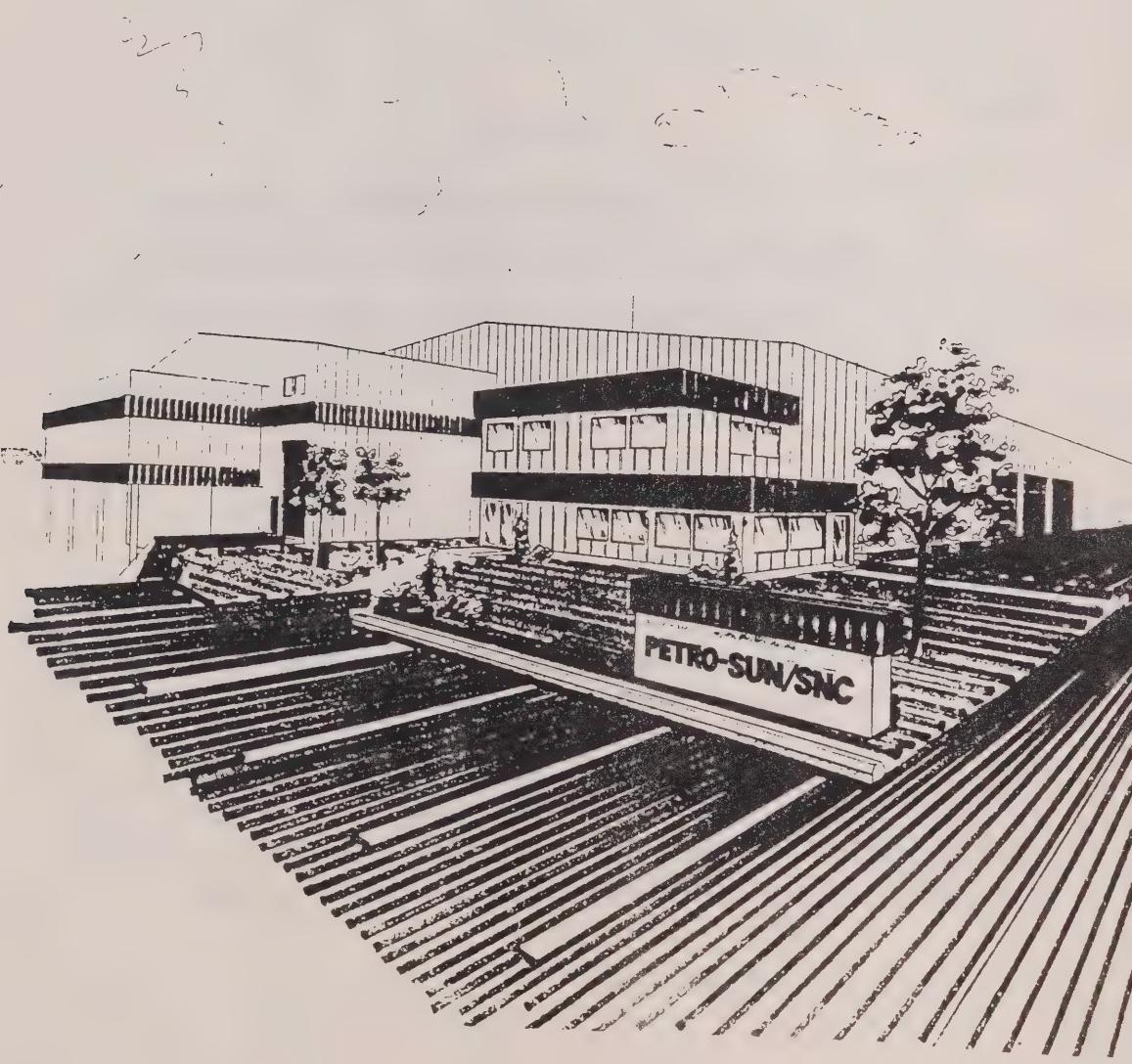
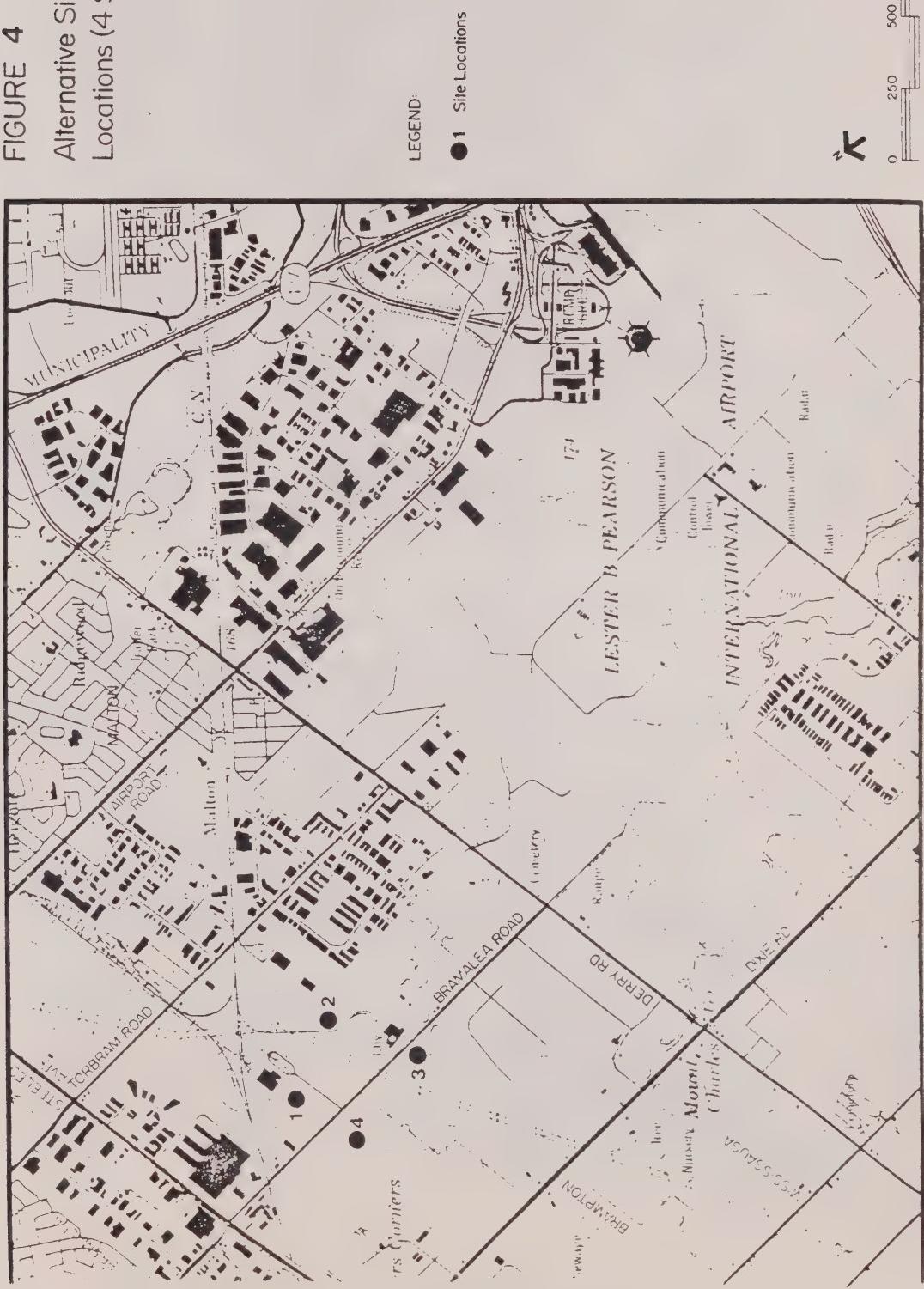


FIGURE 4
Alternative Site
Locations (4 Sites)



The MSW will be delivered by refuse packer trucks under contract to area municipalities. These trucks will follow similar municipal pick-up schedules to those currently followed. Deliveries to the proposed plant will be between the hours of 0800 to 1800, Monday to Friday and 0800 to 1200 Saturdays. All refuse will be deposited inside on the enclosed tipping floor at the Petro-Sun/SNC resource recovery facility. The tipping floor is sized to allow storage of fuel for continuous operation over long weekends. By drawing air from within the facility for combustion, a negative pressure is maintained, and this condition which will prevent the escape of litter, dust or odours.

Once delivered to the Petro-Sun/SNC facility, up to 450 tonnes per day of the MSW fuel will be processed through fuel enhancement equipment (Figure 5). The fuel enhancement system separates out non-combustible materials such as metals, glass and grit from the fuel. This benefits the plant operation by increasing the energy potential of the feed and lowering residue volumes. It benefits the environment by lowering the metal concentration of the fuel, residue and emissions. It also provides the potential for recycling of some of the non-combustible material. Approximately 40 tonnes per day of non-combustible material will be removed prior to incineration.

After enhancement, the fuel will be fed into four Consumat Systems' Inc. modular, two-stage, controlled-air combustion incinerators (Figure 6). Each will be nominally rated at 91 tonnes per day. Refuse will be fed into a hopper at each incinerator by a front-end loader. The fuel will then be fed into the incinerator by a hydraulic ram. A hydraulic loading door seals the primary incineration chamber when not loading.

Within the primary chamber of the incinerator, the refuse is moved along the bottom of this chamber by stepped, water-cooled transfer rams. The burnt residue continues to be moved by these rams to the end of the primary chamber where it is discharged into a quench tank. The temperature of the primary chamber is controlled to between 620°C and 730°C by varying the size of fuel charges fed to it.

The refuse in the primary chamber burns under starved air conditions, essentially being pyrolyzed to produce combustion gases which pass to the secondary chamber. In the secondary chamber, the gases are mixed with up to 150% excess air and burnt at 980°C to 1,100°C to complete combustion. There is a minimum one second retention time.

FIGURE 5
Fuel Enhancement System

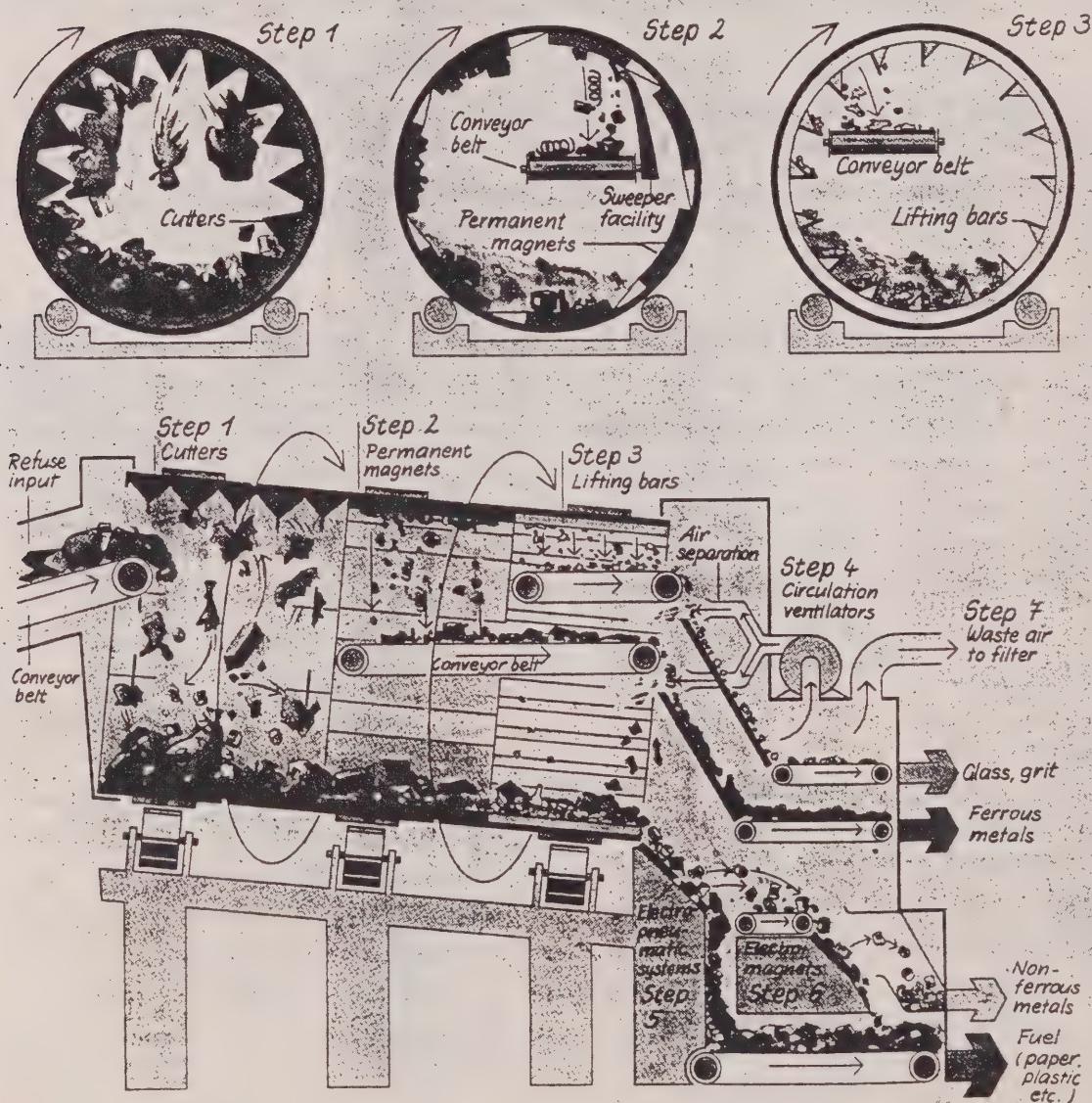
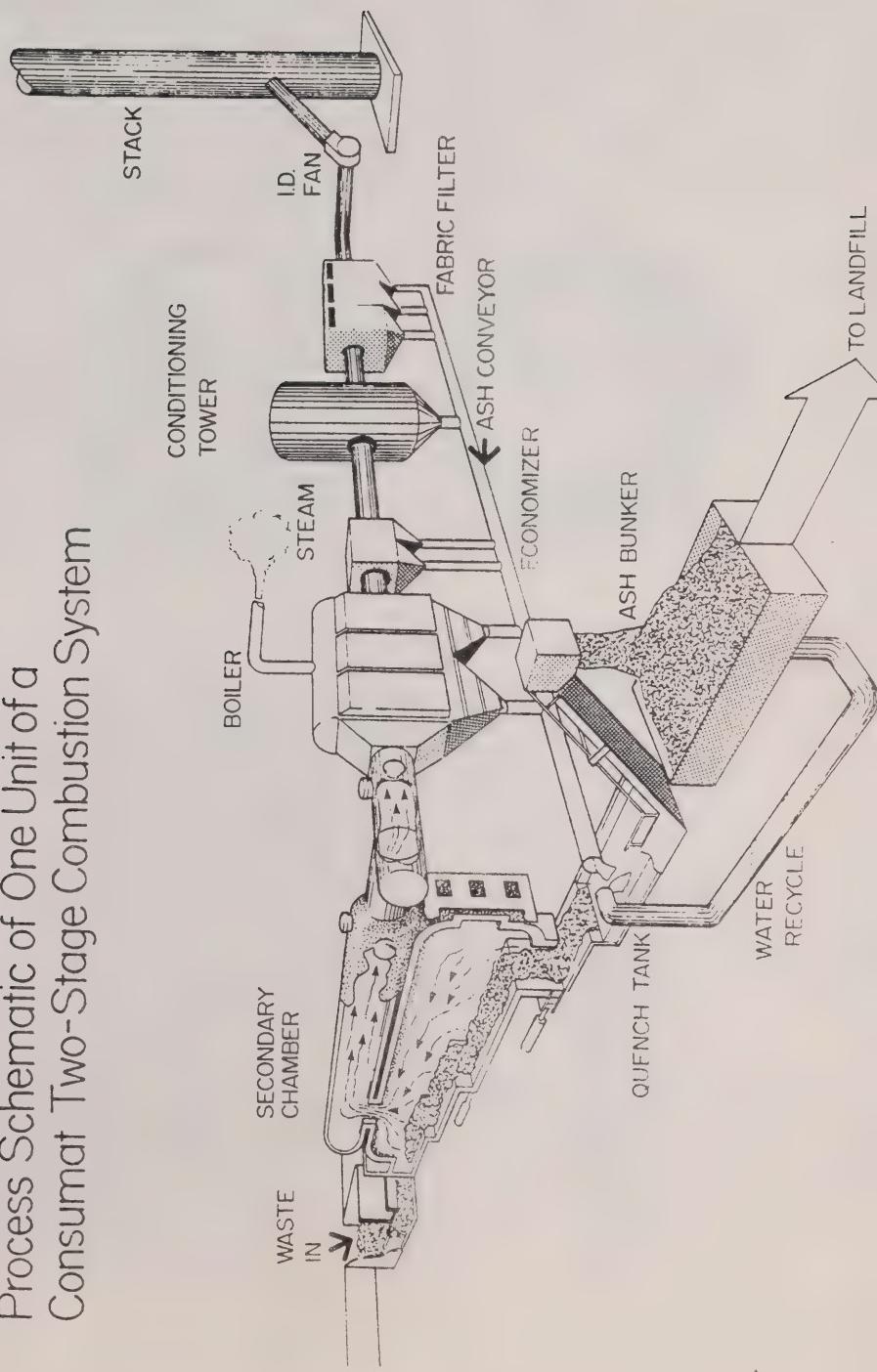


FIGURE 6
Process Schematic of One Unit of a
Consumat Two-Stage Combustion System



The flue gases from the secondary incinerator chamber are drawn into a refractory-lined manifold which exhausts through waste heat recovery boilers and economizers to the air pollution control system and stack. The three waste-heat recovery boilers are designed to operate at a pressure of 4,137 kPa and at 340°C. The boilers are sized so that any two of them can carry the full steam load for the plant. Each boiler consists of a waterwall radiant section, a screened-tube super-heater section, a modular convection/conduction section and an integral economizer. Hoppers are provided below each boiler to collect fly ash.

Steam from the boilers will be piped to Domtar with a parallel condensate return line. A steam turbine is provided to generate electricity for the plant. Provision is made to supply electrical energy to the Brampton Transformer Station if Domtar cannot use all of the energy produced. A standby gas boiler is provided to supplement the steam supply should Domtar require more than can be produced by the resource recovery facility.

From the boilers, the flue gases are passed through two sets of pollution control equipment consisting of gas conditioning towers and fabric filter baghouses. This is similar to the equipment tested and recommended by NITEP (Hay, 1986; Environment Canada, 1986). In the conditioning towers (scrubbers), lime and moisture injected into a turbulent mixing zone to scrub acid gases and organic gases from the flue gas stream. The neutralized gases precipitate as powdered chlorides, sulphates, fluorides and other particulates. These particulates are removed in the fabric filter baghouses. The two air pollution control systems are each sized to treat gases from three of the four incinerators. The cleaned gases from the two sets of air pollution control systems are drawn through two induced draft fans to a stack which tops at 36.3 m above grade. Stack gases exit at 135°C.

Residue from the primary chamber is discharged into a water filled quench tank. The residue is removed by drag link conveyor to a container which is transported by truck to the municipal landfill area. Although the residue is currently exempt from hazardous waste classification under Regulation 309 of the Environmental Protection Act, the proponent has conducted extensive analyses of residues from similar plants to confirm this. Results indicate the residue, if not exempt, would be classified as a "registerable" but not "hazardous" waste. Post-operational testing will be conducted to confirm this.

Emission data were calculated from the results of extensive testing by NITEP (Environment Canada, 1985, 1986). Testing of a similar (Consumat Systems' Inc. modular technology) resource recovery facility operating in Charlottetown, P.E.I. was used to determine the uncontrolled flue gas contaminant level. Data from NITEP were factored up by the relative size to provide appropriate estimates for the 364 tpd plant proposed by Petro-Sun/SNC. Data from the Quebec City NITEP tests of pollution control equipment were then used to estimate control efficiencies and thus the quality of plant emissions. Conservative estimates of control efficiency were used to give emission estimates under cases where pollution control equipment is operating under less than optimal conditions. The concept is that, if modelling proves these emission levels to be environmentally acceptable, normal plant operation will have an even lower potential for affecting ambient air quality. The NITEP (Environment Canada, 1986) reported control efficiencies are compared below to the more conservative removal rates used in this study in Table 1.

Based on our conservative estimates of removal rates through the air pollution control system, emissions used in air pollution models in this study are presented in Table 2. A monitoring program will be conducted to ensure this level of emission quality is met. Emission modelling results are presented in Section 6 of this summary report.

3.0 JUSTIFICATION OF THE NEED FOR THE UNDERTAKING (Section 1 of EA Report)

The Regional Municipality of Peel has been conducting a waste management master planning exercise which is currently in final draft stages (MacLaren Plansearch, 1986). One of the objectives of this draft waste master plan is to reduce the volume of wastes which require landfilling by about 60% over a 40-year planning period. This target was estimated to be achievable through 23% recycling and 37% incineration. Incineration reduces the volume to be landfilled by about 90% of the volume incinerated. The Region's draft waste master plan identified Domtar as a potential steam customer which would justify one such plant in the Region.

The Petro-Sun/SNC Consortium is a private, Brampton-based company which has been formed to take advantage of this opportunity as identified in the draft master plan. Petro-Sun/SNC has determined that it can utilize the municipal solid waste provided under contract with the Region and sell steam to Domtar profitably.

TABLE I: AIR POLLUTION CONTROL EFFICIENCIES REPORTED BY NITEP
 (Environment Canada, 1986) COMPARED TO CONSERVATIVE "WORST-CASE" EFFICIENCIES USED FOR MODELLING IN THIS REPORT

Contaminant	Normal Control Efficiency (%)	Worst-Case Control Efficiency (%)
TSP ¹	NA	-
HCl	80	80
HF	80	80
PCDD	99.9	90
PCDF	99.9	90
PCB	99	50
PAH	84	80
Chlorophenol	99	60
Chlorobenzene	98	60
Cadmium	99.9	90
Lead	99.99	90
Chromium	99.95	90
Nickel	99.95	90
Mercury	93.8	90
Antimony	99.94	90
Oxides of Nitrogen (NO ₂)	NA	NA
Sulphur Dioxide (SO ₂)	70	70
Carbon Monoxide (CO)	NA	NA
Total Hydrocarbons (CH ₄)	NA	NA

¹ Draft agreement limits TSP concentrations to 18.4 mg/m³ @ 12% CO₂, or 12.65 mg/m³ @ stack condition assuming 8.25% CO₂.

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TABLE 2: EMISSION DATA USED IN MODELLING OF AIR POLLUTANTS
(Assumed 5,500 BTU/lb Input)

Contaminant	Estimated Uncontrolled Emissions (364 t/day (mg/s))	Controlled Emissions (mg/s)	Worst-Case Controlled Emission (mg/s)
TSP ²	NA	370	555
HCl	21,400	4,300	4,300
HF	200	40	40
PCDD	0.002	2.1×10^{-6}	2.1×10^{-4}
PCDF	0.003	3.0×10^{-6}	3.0×10^{-4}
PCB	0.016	0.0002	0.008
PAH	0.14	0.022	0.028
Chlorophenol	0.085	0.0009	0.034
Chlorobenzene	0.084	0.0017	0.034
Cadmium	17.5	0.018	1.75
Lead	260	0.026	26
Chromium	0.9	0.0005	0.09
Nickel	3.7	0.0019	0.37
Mercury	14	0.87	1.4
Antimony	12	0.0072	1.2
Oxides of Nitrogen (NO ₂)	11,000	11,000	11,000
Sulphur Dioxide (SO ₂)	3,100	930	930
Carbon Monoxide (CO)	1,340	1,340	1,340
Total Hydrocarbons (CH ₄)	20	20	20

¹ Calculated from emission factor times throughput (364 tpd)/24 x 3,600.

² Draft agreement limits TSP concentrations to 18.4 mg/m³ @ 12% CO₂, or 12.65 mg/m³ @ stack condition assuming 8.25% CO₂.

The steam produced will be provided to Domtar at a discount from the cost Domtar pays to generate this energy internally using fossil fuels. Any excess steam will be used to generate electricity, supplementing Ontario Hydro's reserves of reliable power from indigenous renewable fuels.

The Ontario Ministry of Energy strongly supports the production of energy from municipal solid waste. The Ministry has proposed at least 15% of the province's energy come from such sources by 1995. The Ministry emphasizes the following benefits from energy resource recovery:

- internalization of energy expenditures within the province;
- provincial employment opportunities;
- improvements in environmental quality when compared to landfilling;
- use of indigenous fuels; and
- reduction in primary resource use.

In summary, the need for this undertaking is justified by economic benefits to the proponent and energy customers, coupled with the aid this project will provide in meeting Regional and Provincial waste management and energy policies. Environmental studies, discussed in the following sections, indicate these benefits will far outweigh any adverse effects related to this proposed undertaking.

4.0 DESCRIPTION OF POSSIBLE ALTERNATIVES TO THE UNDERTAKING (Section 2.2 in EA Report)

The undertaking is defined as "the establishment and operation of a facility to generate steam/electrical energy for sale to Domtar/Ontario Hydro through the incineration of municipal solid waste". The alternatives which were compared to this undertaking include:

- the generation of steam by Domtar utilizing fossil fuel (this is the status quo/no development alternative);
- the generation of steam by Domtar using refuse-derived fuels;
- the generation of steam for Domtar by Petro-Sun/SNC using fossil fuels;
- sales of steam to Domtar only, without electrical generation; and
- sales of electricity to Ontario Hydro only, without steam sales.

4.1 Generation of Steam By Domtar Using Fossil Fuels

Domtar currently uses gas or oil (as prices warrant) to generate steam. Continuation of this practice would result in the "status quo" or no development alternative. This status quo alternative would result in the loss of economic benefits to Petro-Sun/SNC and to Domtar. From the Regional and Provincial perspectives, it would mean the loss of an opportunity to partially meet the draft objective of landfill waste reduction (by over 17% of the current refuse volume) and the policy of internalizing the source of energy fuels, respectively.

From environmental perspectives, incineration of municipal solid wastes produces a greater variety of air emissions than natural gas, but since these emissions are well within regulated maximums even under most upset conditions, no significant environmental risk would be incurred.

4.2 Generation of Steam by Domtar Using Refuse-derived Fuel (RDF)

The existing boiler equipment at Domtar cannot use solid fuels such as RDF. Boiler conversion plus front-end, fuel-handling equipment would make such an option not economically feasible. Additional pollution control equipment would also be required to bring emissions to the same level as those predicted for the Petro-Sun/SNC proposal. Petro-Sun/SNC would lose an opportunity for economic and technological benefits if this alternative were to be selected.

4.3 Generation of Steam by Petro-Sun/SNC Using Fossil Fuels

The duplication of equipment, infrastructure, land requirements, etc. required by such an alternative would raise the cost of steam production well above that of the status quo alternative. Domtar would not find it economic to mothball its own equipment and then pay a higher price for someone else to generate steam. Petro-Sun/SNC could not provide steam at a lower price than the existing Domtar boiler, and thus would have to lose money in order to make such an alternative attractive to Domtar.

This alternative would result in the loss of economic benefits to Domtar and Petro-Sun/SNC, as well as the loss of the beneficial aspects of helping to meet Regional

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This alternative would result in the loss of economic benefits to Domtar and Petro-Sun/SNC, as well as the loss of the beneficial aspects of helping to meet Regional

objectives and Provincial policies relative to landfill volume reduction and indigenous, renewable energy use, as discussed in Section 4.1.

4.4 Sales of Steam Only Without Electrical Production

Domtar is the only steam customer in the study area. Domtar cannot utilize all of the steam produced at the Petro-Sun/SNC plant at all times. Without electrical generation, excess steam would be condensed or released into the atmosphere. This would waste valuable energy, may produce visible water-vapour plumes and would result in economic losses to Petro-Sun/SNC.

4.5 Sales of Electricity Only

At the current rate paid by Ontario Hydro, this alternative would result in a loss of about 50% of the total revenue estimated for the Petro-Sun/SNC plant. Since the Domtar boiler would continue operation, visible steam and other (NO_x) emissions from this plant would continue. Other issues would not be changed significantly.

4.6 Conclusions

Based on the above, the proponent has concluded that the preferred alternative is a separate resource recovery facility utilizing municipal solid waste as fuel and selling steam/electricity to Domtar/Ontario Hydro. From an economic perspective, the steam generation should be within 1 km of the customer location. As discussed below, several appropriate sites have been identified and studies have been conducted to select the preferred location based on environmental, economic and technical considerations.

5.0 ALTERNATIVE IMPLEMENTATION METHODS

5.1 Site Alternatives

Four site alternatives (Figure 4) were selected based upon:

- land availability (at least 2 ha);
- location, within 1 km of Domtar;

- location within an industrial area;
- separation by at least 1 km from residential zones (a criteria suggested by the Ontario Ministry of Energy, pers. comm. and the Citizens' Solid Waste Advisory Committee for the Regional Municipality of Halton, 1986); and
- access to a major roadway.

Environmental studies of these site alternatives have continued for over a year. During this period, two of the alternative sites (Nos. 1 and 3 on Figure 4) have been sold or leased and are no longer available. At the same time, Alternative 4 is actually three separate, but adjacent, lots, each with more than the required 2 ha of area. As outlined below and summarized in Section 8 of the EA Report, environmental analysis has indicated either of the remaining alternatives (Sites 2 or 4) could be developed with minimal environmental effect.

5.2 Process Alternatives

5.2.1 Equipment Alternatives

1. Incinerator

Three types of municipal solid waste incinerators have been compared:

- moving grate waterwall "European" technology;
- modular controlled air "North American" technology; and
- suspension burning.

The moving grate, waterwall technology is used in Canada at the Quebec City incinerator. This older technology has been less popular in Canada and the U.S.A. than the modular technology. It is more costly for a plant of the size envisioned, more complex to operate and produces higher particulate emission loading (Environment Canada, 1985, 1986). The technology does provide marginally better thermal performance.

An example of suspension burning in Canada is the Hamilton, SWARU incinerator. This technology requires RDF pre-preparation of fuels which adds significantly to costs. The SWARU facility has also experienced considerable fuel handling and emission problems.

The modular technology (Figure 6) is currently most popular in North America. Canadian examples include the Consumat Systems' Inc. plants at Charlottetown, P.E.I. (108 tpd), the Ford Motor plant in Oakville (72 tpd) and the one being constructed at London's Victoria Hospital (273 tpd). This technology is simpler to operate, and has been shown to produce lower emission rates than either of the alternatives. Also, since Petro-Sun of Brampton is the Canadian licensee for Consumat Systems' Inc. modular technology, this has been chosen for the Petro-Sun/SNC plant in the Regional Municipality of Peel.

2. Emission Control and Stack

Air pollution control equipment has advanced greatly over the last decade. The P.E.I. facility has no emission control equipment, and yet would meet all Ontario ambient regulations except, at some times, hydrogen chloride (Environment Canada, 1985). More recently, cyclones, electrostatic precipitators and fabric filters have been used, primarily for particulate control. In the most modern plants, gas conditioning towers (also referred to as scrubbers) have been incorporated to control acid gases and organics, followed by fabric filter baghouses to remove organics. This is the "state-of-the-art" in air pollution control, and has been recommended as most appropriate for municipal waste incineration (Environment Canada, 1986; Hay, 1986). For this reason, this is proposed for the Petro-Sun/SNC plant (Figure 6).

Two air pollution control systems, each consisting of a gas conditioning tower, fabric filter baghouse and induced draft fan, are proposed. This twinning of the air pollution control system results in partial redundancy which allows operation of three of the four incinerators if one air pollution control system is shut down.

The stack is used to disperse the treated emissions in order to minimize ground-level air quality effects. Studies have indicated that the Petro-Sun/SNC facility could meet Ontario regulations with a much lower stack. However, to minimize anticipated effects, a 36.3 m (120 ft) stack is proposed. This is the maximum allowed due to airport height restrictions.

3. Process Alternatives

As discussed in Section 4, RDF pre-processing of fuel is not considered economically feasible, and would not benefit plant operation or environmental control. A fuel

enhancement system (Figure 5), incorporating removal of non-combustibles such as metals, glass and grit, has recently been developed for Consumat Systems' Inc. plants in the U.S.A. As discussed in Appendix 8 of the EA Report, initial testing at Gallatin, Tennessee has shown economic and environmental benefits. The potential environmental benefits include:

- higher BTU content of fuel;
- removal of metals (reportedly 50% of lead) from emissions and residue;
- reduced maintenance of incineration equipment; and
- possible resale of recovered non-combustibles.

Petro-Sun/SNC proposes to incorporate a 450-tpd fuel enhancement system into this facility. Post-operational testing will be used to confirm the estimated economic and environmental benefits of this system. The environmental studies, summarized later, indicate the plant can meet all relevant regulations without this fuel enhancement. Its addition can only benefit plant operation and the environment.

As discussed in Section 4, alternatives involving steam or electricity production only are considered not economically feasible.

Two types of tipping floor arrangement were compared:

- a pit/crane system, and
- a flat floor/front-end loader system.

The flat floor/front-end loader system is standard for the modular design. It allows increased reliability, since loaders can be rented or replaced more quickly, easily and economically than cranes. Flat floors are easier to clean and allow prevention of long-term build-up of refuse in hard to reach corners. The pit/crane system is usually only appropriate when space is a premium. For these reasons, the flat floor/front-end loader system was chosen for the Petro-Sun/SNC facility.

Two systems of wastewater control were investigated:

- in-plant treatment and recycling, or
- disposal to municipal sewer.

Because of potential wastewater (quench water, wash water, residue drainage) contamination and uncertainties over final wastewater quality, the first alternative, in-plant treatment and reuse, was chosen for all streams, except clean stormwater which will be directed to the municipal storm sewer.

6.0 GEOGRAPHIC AREAS

As depicted on Figure 4, all site alternatives are located in an industrial setting north of the Pearson International Airport along Bramalea Road between Derry Road and Steeles Avenue in the Regional Municipality of Peel. All sites are a minimum of 1,500 m from residential zones.

7.0 POTENTIAL ENVIRONMENTAL EFFECTS (Sections 5 and 6 of EA Report)

7.1 Air Quality

The industrial nature of the study area (a minimum of 1,500 m from the closest residential zone) has resulted in the primary environmental concern being air quality. Emphasis was thus placed on this area of study. Operational standards for this facility easily meet provincial regulatory standards and match those set by the Ontario Environmental Assessment Hearing Board for the London Victoria Hospital facility.

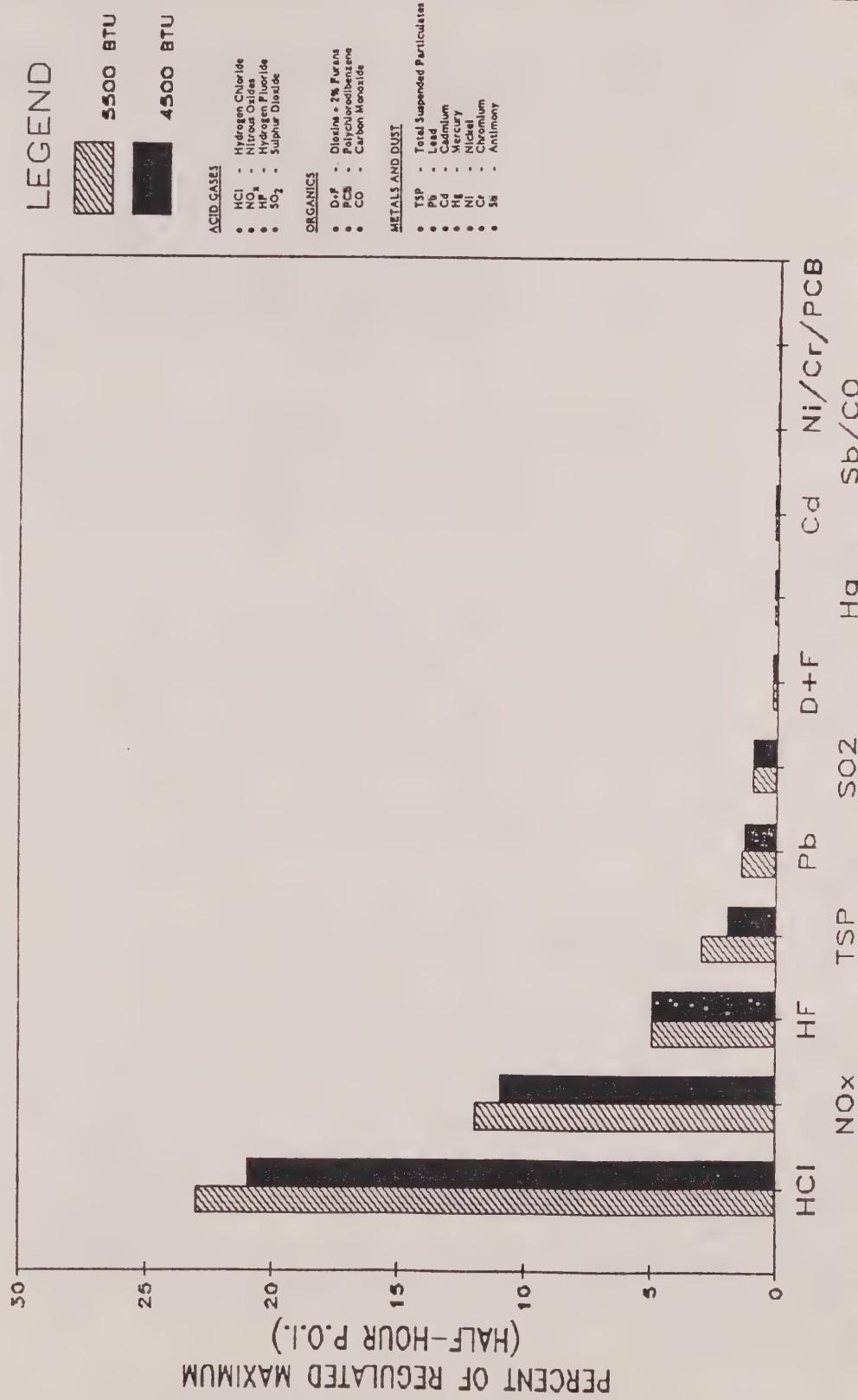
Various plant operating situations were examined and emissions arising from these conditions were modelled using both the model specified under the existing Regulation 308 and a long-term model. Additional work examined the implications of a proposed revision to Regulation 308, which is anticipated to be promulgated sometime in 1987.

With respect to the existing Regulation 308, the following and Figure 7 summarize the findings:

- maximum ground level concentrations of HCl (the emission closest to regulated maxima) under worst-case operating conditions are less than 25% of the legislated standard;
- similarly, dioxin and furan values (PCDD/PCDF) are 1/4 of 1% of the standard;

FIGURE 7

MAXIMUM GROUND LEVEL CONCENTRATIONS AS
% OF REGULATED MAXIMUM UNDER TWO FUEL
VALUES (5500 BTU & 4500 BTU).



- the highest trace metal concentration with respect to the standard was lead at 1.4%;
- even with no control from the APC system, only HCl would exceed existing standards and then only by 15%; PCDD/PCDF would be 2.4%; lead 14%; and
- in general, with the exception of HCl, NO_x, TSP and HF, if the emission levels rose by 50 times the worst-case levels, the values would still meet the legislated levels. Since such a situation is highly unlikely, it was concluded, on the basis of short-term modelling, that few effects would be noted from the plant.

The long-term modelling results included a calculation of ground level contaminant build-up for 20 years. Generally, the results (Table 3) show no appreciable increase in ambient air quality loadings over the existing levels will be produced by the plant.

7.2 Traffic and Noise

Truck traffic levels for an energy resource recovery plant incorporating four 91-tonne (100-ton) per day incineration modules are estimated at 40 to 50 medium garbage trucks (dumpster) on a daily basis. The plant will also generate approximately ten truck loads of residue waste per day which will be directed to the Region's landfill site. This brings the total vehicle movements to 120 per day. This is about 1.4% of the 24-h average weekly daily traffic counts (8,735, both directions) measured on Bramalea Road north of Derry Road (1985 data, Traffic Department, City of Mississauga).

Trucks will operate between 0800 and 1800 on a five-day per week basis, and from 0800 to 1200 on Saturdays. At peak receiving rate, it is anticipated that up to 13 trucks could be waiting on plant property to drop their loads. The tipping floor in the plant can hold approximately three days worth of municipal waste to allow for evening, weekend and holiday operations. Under the draft agreement with the Region, the area municipalities will continue to be responsible for collection of refuse to supply the plant, so it is assumed that collection routes and times will not vary from those existing. Collection trucks from either Bramalea or Malton currently use nearby roads (Bramalea Road, Dixie Road, Derry Road) to get from these residential areas to the existing landfill site. Hence, the schedule and routes of solid waste collection will not be affected significantly by the proposal, nor will there be a change in traffic due to refuse collection.

Table 3

Long Term Average Ground Level (Annual) Concentration ($\mu\text{g}/\text{m}^3$)

Compound	Emission Rate (ng s^{-1})	A	A - B	B - C	C - D	D - E	E				
TSP	267	<0.008	-0.013	0.013	-0.019	0.019	-0.0267	-0.032	0.032		
HC1	3,600	0.108	-0.18	0.18	-0.252	0.252	-0.36	-0.432	0.432		
HF	34	0.001	0.000	-0.0017	-0.0024	0.0024	-0.0034	-0.00408	0.00408		
PCDD	0.0000018	5.4(10) ⁻¹¹	5.4(10) ⁻¹¹ - 9(10) ⁻¹¹	9(10) ⁻¹¹	-1.26(10) ⁻¹⁰	1.26(10) ⁻¹⁰ - 1.8(10) ⁻¹⁰	1.8(10) ⁻¹⁰ - 2.16(10) ⁻¹⁰	2.16(10) ⁻¹⁰			
PCDF	0.0000024	7.2(10) ⁻¹¹	7.2(10) ⁻¹¹ - 1.2(10) ⁻¹⁰	1.2(10) ⁻¹⁰	-1.68(10) ⁻¹⁰	1.68(10) ⁻¹⁰ - 2.4(10) ⁻¹⁰	2.4(10) ⁻¹⁰ - 2.88(10) ⁻¹⁰	2.88(10) ⁻¹⁰			
PCB	0.00014	4.2(10) ⁻⁹	4.2(10) ⁻⁹ - 7(10) ⁻⁹	7(10) ⁻⁹	-9.8(10) ⁻⁹	9.8(10) ⁻⁹ - 1.4(10) ⁻⁸	1.4(10) ⁻⁸ - 1.58(10) ⁻⁸	1.58(10) ⁻⁸			
PAH	0.0012	5.8(10) ⁻⁷	5.8(10) ⁻⁷ - 9.6(10) ⁻⁷	9.6(10) ⁻⁷	-1.3(10) ⁻⁶	1.3(10) ⁻⁶ - 1.92(10) ⁻⁶	1.92(10) ⁻⁶ - 2.3(10) ⁻⁶	2.3(10) ⁻⁶			
Chlorophenol	0.00075	2.3(10) ⁻⁸	2.3(10) ⁻⁸ - 3.8(10) ⁻⁸	3.8(10) ⁻⁸	-5.3(10) ⁻⁸	5.3(10) ⁻⁸ - 7.5(10) ⁻⁸	7.5(10) ⁻⁸ - 9(10) ⁻⁸	9(10) ⁻⁸			
Chlorobenzene	0.0015	4.5(10) ⁻⁸	4.5(10) ⁻⁸ - 7.5(10) ⁻⁸	7.5(10) ⁻⁸	-1.05(10) ⁻⁷	1.05(10) ⁻⁷ - 1.5(10) ⁻⁷	1.5(10) ⁻⁷ - 1.8(10) ⁻⁷	1.8(10) ⁻⁷			
Cadmium	0.016	4.8(10) ⁻⁷	4.8(10) ⁻⁷ - 8(10) ⁻⁷	8(10) ⁻⁷	-1.12(10) ⁻⁶	1.12(10) ⁻⁶ - 1.6(10) ⁻⁶	1.6(10) ⁻⁶ - 1.92(10) ⁻⁶	1.92(10) ⁻⁶			
Lead	0.0345	1.64(10) ⁻⁶	1.64(10) ⁻⁶ - 1.7(10) ⁻⁶	1.7(10) ⁻⁶	-2.4(10) ⁻⁶	2.4(10) ⁻⁶ - 3.4(10) ⁻⁶	3.4(10) ⁻⁶ - 4.14(10) ⁻⁶	4.14(10) ⁻⁶			
Chromium	0.00036	1.00(10) ⁻⁸	1.00(10) ⁻⁸ - 1.8(10) ⁻⁸	1.8(10) ⁻⁸	-2.52(10) ⁻⁸	2.52(10) ⁻⁸ - 3.6(10) ⁻⁸	3.6(10) ⁻⁸ - 4.32(10) ⁻⁸	4.32(10) ⁻⁸			
Nickel	0.0022	6.6(10) ⁻⁸	6.6(10) ⁻⁸ - 1.1(10) ⁻⁷	1.1(10) ⁻⁷	-1.54(10) ⁻⁷	1.54(10) ⁻⁷ - 2.2(10) ⁻⁷	2.2(10) ⁻⁷ - 2.56(10) ⁻⁷	2.56(10) ⁻⁷			
Mercury	0.75	2.25(10) ⁻⁵	2.25(10) ⁻⁵ - 3.75(10) ⁻⁵	3.75(10) ⁻⁵	-5.25(10) ⁻⁵	5.25(10) ⁻⁵ - 7.5(10) ⁻⁵	7.5(10) ⁻⁵ - 9(10) ⁻⁵	9(10) ⁻⁵			
Antimony	0.0058	1.74(10) ⁻⁷	1.74(10) ⁻⁷ - 2.9(10) ⁻⁷	2.9(10) ⁻⁷	-4.1(10) ⁻⁷	4.1(10) ⁻⁷ - 5.8(10) ⁻⁷	5.8(10) ⁻⁷ - 6.56(10) ⁻⁷	6.56(10) ⁻⁷			
NO ₂	10,000	0.3	-0.5	0.5	-0.7	0.7	-1.0	1.0	-1.2	1.2	
SO ₂	540	0.0162	0.0162	0.027	-0.038	0.038	-0.054	0.054	-0.0648	0.0648	
CO	1,300	0.039	0.039	-0.065	0.065	-0.091	0.091	-0.13	0.13	-0.156	0.156
Total Hydrocarbons	22	6.6(10) ⁻⁴	6.6(10) ⁻⁴ - 1.1(10) ⁻³	1.1(10) ⁻³	-1.54(10) ⁻³	1.54(10) ⁻³ - 2.2(10) ⁻³	2.2(10) ⁻³ - 2.64(10) ⁻³	2.64(10) ⁻³			

Details of a noise assessment conducted for Petro-Sun/SNC are presented in Appendix 3 of the EA Report. This study suggests that, at 150 m from the plant, the stationary noise sources in the plant will not produce a level exceeding the existing Leq values.

7.3 Potential Effects on the Biophysical Environment

Geological effect potential relates to three areas of concern - erosion, structural changes, and mineral resources. There are no known mineral resources that would be affected at any of the four site alternatives. Structurally, the proposed plant is similar to any of the other industrial plants existing or being built in the immediate area. With the exception of the stream valley passing Alternative Sites 3 and 4 (see Figure 4), there is no topographic relief at any of the site alternatives. The stream running past Site 3 is adequately separated from the site development area to buffer potential effects. Each of the three lots at Site Alternative 4 extends partly into the creek valley. Each of these lots has adequate area to accommodate the 2 ha required for plant facilities, without interfering with the floodplain/fill regulation area. An access bridge will be required if one of the two westerly lots at Site 4 is chosen. Permits from MTRCA will be required for any construction within the fill regulation lines. The structure and parking/turning area will present an impervious surface which, with collection and process use of runoff, will result in less natural drainage to the local stream. Erosional effects are likewise prevented due to the lack of site relief and the buffer areas available between Alternatives 3 or 4 and the stream. Covering of site areas with buildings, asphalt and landscaping will reduce wind erosion since the areas are currently unvegetated and plowed for extended periods.

Effects on surface or ground water quality will be prevented through use of municipal servicing for domestic sewage and water and the design of the plant to recycle all other wastewater sources. Any process water disposal, when not recyclable, will be through evaporation in the residue quench tank, or mixing with the residue going to the landfill site.

Two site alternatives (1 and 2) are located on plowed fields with no nearby streams nor forest vegetation. Potential biological effects are thus not significant. The third site (Alternative 3) is located on an old field habitat - predominantly grasses with a variety of weedy species and some small shrubs. It is bordered by a small warm-water stream

whose floodplain is zoned as a Fill-line Protection Area. There will be adequate buffer zone between the plant and this stream to negate any potential effects. The stream is lacking in significant populations or species of fish or invertebrates, it has little to no vegetation along its banks, and existing industrial plants are located in closer proximity than the proposed incinerator site. Site 4 is under cultivation and also bisected by this stream.

7.4 Potential Effects on Land Uses

Existing land uses in the study area are primarily industrial. Some vacant lands are under agricultural use, including Site Alternatives 1, 2 and 4, but industrial developments are filling in most of such areas. There has been active industrial construction in the immediate area throughout the several years of our study.

In the Brampton zoning by-law, Site Alternative 1 is designated as M3 - Heavy Industry, and Site 4 is zoned AP - Agriculture Parkway Belt. Site 1 would require division to provide a lot for the EFW facility. According to the Ministry of Government Services (pers. comm., 1986) who owns Site 4, its zoning will be changed now that highway and power corridors through the area have been finalized. One piece of this land to the north of Site 4 has recently undergone such a change. The stream valley running through Alternative Area 4 and adjacent to Alternative Area 3 is zoned as fill regulated area. A permit from the Metropolitan Toronto and Region Conservation Authority will be required for any construction within these fill regulation lines. The closest residential zoning to either site is about 1,500 m away in Bramalea to the northwest. The closest building taller than the proposed stack is a twenty-storey apartment building at Clark Blvd. some 3,500 m northwest of the site.

In the Mississauga official plan, the area of Alternatives 2 and 3 is all designated industrial. There is a greenbelt area along the tributary to Etobicoke Creek which runs about 50 m from the boundary of Site 3 and through Site Area 4. Although industrial height regulations are not imposed by the City (except for airport flight paths as discussed earlier), economics dictate that no current or planned buildings in this area are expected to exceed three stories of office or working space (12 m height). The closest residential zones are in Malton, at least 2,000 m away, and the closest building taller than the stack is at Clark Blvd., some 3,500 m distance.

The draft airport plan indicates that the site is within the 30 NEP noise contour. Airport zoning restrictions limit stack heights to 36.3 m (720 ft ASL) except in flight path zones, where additional restrictions are imposed.

7.5 Potential Effects on Heritage Resources

One archaeological site may potentially be affected by Alternative 1. This historical site probably represents the residence of one of the original, although perhaps not the earliest, settlers of the "new survey" of Toronto Gore Township. The site's significance lies in the fact that few (or, more likely, none) of the early homesteads within this portion of the Regional Municipality of Peel (or for that matter anywhere else in the area) have been subjected to archaeological investigation.

No archaeological sites were discovered in the area of Alternative 2.

Alternative Sites 3 and 4 have not yet been subjected to an archaeological survey. The land owners have not granted permission to do so. Therefore, the potential effects of facility development cannot be estimated at this time. If either site is chosen, Petro-Sun/SNC has committed to conduct such studies, and a recovery archaeology program if pertinent.

7.6 Potential Socio-economic Effects

7.6.1 Population

The population within a 1,000 m radius of the site represents the population most likely to be affected by the development from air quality, noise, traffic, visual and other perspectives. Since the proposed plant is to be located in an industrial zone, with no residential areas within 1,500 m of the site, effects on the population are expected to be minimal (c.f. Halton Citizens' Solid Waste Advisory Committee, 1986).

Technology for refuse incineration has advanced greatly in the last two decades. Modern plants can be built and operated with minimal environmental effects. The proposed plant will be built and operated with modern, state-of-the-art environmental control technology. It will more than meet provincial regulations and guidelines for potential

environmental contaminants, and its performance will match those mandated for the London Victoria Hospital facility by the Ontario Environmental Assessment Hearing Board. Therefore, few or no negative effects are expected on the general population of Bramalea or Malton, nor on employees of the proposed plant, surrounding industrial area and people trucking the municipal waste.

Due to the relatively small number of jobs at the incinerator and the large population base within commuting distance, no significant effects on population levels in Bramalea or Malton are anticipated.

7.6.2 Property Values

The proposed resource recovery plant is to be located in an industrial area with the nearest residential area more than 1,500 m from the site. The location of a resource recovery plant in an industrial area is not likely to affect property values of nearby residential areas, since the basic nature of the area is not changed. Based on past experiences, property values will not change at all if an industrial site is chosen and housing is not within a 300 m buffer of this.

7.6.3 Labour Force

Due to the small number of full-time employment opportunities (30 and 35) at this plant compared to the local and regional labour force, no significant long-term labour force benefits are predicted. Construction employment is estimated at 175,000 hours, with an additional 226,000 hours of Canadian manufacturing employment. The likelihood is that construction will be by a firm with an existing work force. However, some temporary jobs will be created during the construction phase. Preferences in hiring from the local population will maximize benefits in the immediate area.

During the construction phase expenditures will be made for equipment, engineering, design work and on-site construction activity. The on-site activity would involve jobs for contractors in the Bramalea area, whereas other expenditures would be spread across the province. Jobs and total economic expenditure in Ontario associated with the construction of this plant are estimated at \$31 million (1986), with a total related estimated expenditure of \$61 million in Ontario and which would provide 750 person-years of employment.

7.6.4 Other Socio-Economic Indicators

Economic benefits will also be accrued by Petro-Sun International (a Brampton company), Domtar (a Mississauga company) and The SNC Group (a Canadian company). The plant will not affect education levels, age of housing units nor tenure of housing. Construction of the resource recovery plant will assist in maintaining or increasing family income levels, especially those where new jobs are created. The plant will have no effect on traffic generated in solid waste collection, whereas traffic directed to the plant will have only a minor effect on total traffic on Bramalea Road.

7.7 Comparative Ranking of Environmental Effects

Many of the environmental factors used to evaluate a project under the Environmental Assessment Act are qualitative rather than quantitative. Thus, criteria have to be set to allow a numerical evaluation. These criteria are listed in Table 4, defining how one objectively designates an effect as major, moderate or minor. These are scored as ± 5 , ± 3 and ± 1 respectively, depending upon whether effects predicted are beneficial (+) or adverse (-).

In the environmental effects comparative analysis, the major differences in scoring between the four site alternatives results from the following criteria:

- 1.3 Acid Gas Ground Level Concentrations (Regulation 308): Sites 1, 2 and 4 would result in concentrations 10% of the regulation value one-half hour values within residential areas.
- 1.4 Mercury Build-up in Soils: Since mercury does not bioconcentrate through soil-vegetation pathways (Fish and Wildlife Service, 1978), this was weighted less than other metals. However, a worst-case scenario indicates Alternative 4 would have slightly lower soil build-ups over a 20-year period than Alternatives 1 to 3. Calculations for other metals did not vary significantly between the sites.

TABLE 4: CRITERIA FOR COMPARATIVE ENVIRONMENTAL EFFECTS RANKING

Environmental Parameter	EFFECT CRITERIA SCORING			Concern Weighting (1 to 10)
	Major (5)	Moderate (3)	Minor (1)	
1.0 Human Health & Safety				
1.1 Organic Emissions (dioxins)	Exceed government regulations at critical point of impingement or over 50% of regulation within residential area	Over 50% of regulation at critical point of impingement or over 25% of regulation within residential area	Over 25% of regulation at critical point of impingement or over 10% of regulation within residential area	10
1.2 Metal Emissions (lead)				8
1.3 Acid Gas Emissions (HCl)				6
1.4 20-year Build-up in Soils (mercury only)	Over existing or reportedly normal urban levels in residential zone	Between 50% to equal to existing or reportedly normal urban levels in residential zone	Between 5% and 49% of existing or reportedly normal urban levels in residential zone	5
1.5 20-year Build-up in Soils (other metals)				8
1.6 Populated Areas Downwind	Wind blows more than 40% of time towards residential Bramalea or Malton (within 5 km of site)	Wind blows more than 30% of time towards residential Bramalea or Malton (within 5 km of site)	Wind blows more than 20% of time towards residential Bramalea or Malton (within 5 km of site)	8
1.7 Increases in Traffic	Increased over 5% in residential areas or 10% on any road	Increased over 1% in residential areas or 5% on any road	Increased to any level in residential areas or 1% on any road	7
1.8 Deterioration of Domestic Water Supplies (surface or ground)	Water pollution to exceed government drinking water guidelines	Water pollution to effect any potential use	Any potential for water pollution	5
2.0 Socio-economic Environment				
2.1 Land Use Zoning (or Official Plan)	Incompatible - requires zone amendment	Bordering on incompatible zone	Any zoning other than industrial	6
2.2 Existing Land Use	Residential	Environmental protection or agricultural	Other than industrial or vacant	4
2.3 Noise	Exceeds harmful thresholds	Increases more than 5 dBA above ambient at nearest residential zone	Increases more than 5 dBA at nearest adjacent building site	4
2.4 Residential Population	Any residential zone within 1 km radius	Any residential zone within 2 km radius	Any residential zone within 3 km radius	8
2.5 Heritage Resources	Affects non-recoverable historic or archaeological resource	Affects any unique historical or archaeological resource	Affects any historical or archaeological resource	3
2.6 Visual Aesthetics	Visual intrusion into area of recognized tourist attraction	Visual intrusion into existing infrastructure of area	Visual intrusion similar to other facilities in area	5
3.0 Natural Environment				
3.1 Habitat for Flora or Fauna	Direct effects on recognized environmental protection area	Indirect effects on recognized environmental protection area	Effects on any distinct natural habitat (e.g., woodlot, stream)	3
3.2 Terrestrial Flora or Fauna Species	Alters regional population irreversibly or affects rare species	Alters regional population during operation, but post-operational recovery is probable	Affects any locally significant flora or fauna	3
3.3 Aquatic Flora or Fauna Species	These are ranked in the same manner as terrestrial species (above)			3
3.4 Mineral Resources	Existing extractions	Designated as mineral resource area	Any reporting of potential mineral resources	1
4.0 Financial				
4.1 Steam Pipe Distance	Over 1.5 km	Over 1 km	Over 500 m	5
4.2 Land Availability	Not available	Available at above average market value for area	Available at average market value	8
4.3 Access Roads	Over 1 km and major changes to existing road	Over 500 m and significant changes to existing road	Over 500 m with no significant changes to existing road	3

- 1.6 Wind Direction: Long-term wind records for the Pearson International Airport indicate:

<u>Site Alternative</u>	<u>% of Time Malton or Brampton Residential Areas (within 5 km of site) are Downwind</u>
1	47.1%
2	46.9%
3	37.2%
4	38%

- 2.1 Zoning: Site 1 is zoned industrial, but would require a land division. Site 4 is currently zoned Agriculture Parkway Belt West. This latter zoning is primarily for highway, transmission or pipeline corridors.
- 2.2 Existing Land Uses: Sites 1, 2 and 4 are currently being used as agricultural land.
- 2.5 Heritage Resources: Site 1 had a historical site of minor importance which is recoverable. Sites 3 and 4 could not be ranked since permission was not granted by owners to conduct a heritage resource study.
- 4.1 Steam Pipe: Site 4 is furthest from Domtar, followed by 1, 2 and 3 respectively.
- 4.3 Access Roads: Sites 1 and 2 would require longer access roads.

8.0 REMEDIAL MEASURES (Section 7 of EA Report)

A number of remedial measures, such as state-of-the-art emission control, fuel enhancement and wastewater reuse, are integral parts of the plant design. As such, these are discussed in Sections 2 and 4 of this summary. Other remedial measures to which the proponent is committed include:

- an extensive pre-submission consultation program with government and the public will be continued;
- stack and ambient air monitoring programs;
- water and/or calcium use to control dust during construction;
- revegetation of any open soil areas after construction is complete;
- contractual agreements to prevent litter or spillage;
- coverage of all containers or trucks containing refuse or residue when outside the plant building;
- archaeological surveys and recovery where necessary; and
- negotiation of appropriate zoning, fill-line permits, etc. where necessary.

9.0 ADVANTAGES AND DISADVANTAGES TO THE ENVIRONMENT

9.1 Advantages

Advantages of the proposed resource recovery plant include:

- recovery of non-combustible resources through use of the fuel enhancement system;
- 90% reduction of waste volume to landfill (saves land);
- recovery of waste into energy (to comply with government policies);
- saving of non-renewable resources, i.e., gas and oil by using waste for energy;
- reduction of potential odour problems;
- reduction of potential vermin problems;
- decrease in health risks due to microorganisms associated with residential waste;
- reduction in quantity and an improvement in the quality of leachate at the landfill site;
- decrease total amount of pollutants in waste through breakdown during incineration;
- perpetual care of the resource recovery plant site will not be required after closure, as opposed to a landfill site;

- reduction of total dioxins and furans in the environment (according to NITEP studies);
- residue landfilled will not exhibit future settlement problems as is the case with raw refuse landfill so that the land could be put to other uses in a shorter time frame; and
- recovery of archaeological or heritage resources where present.

9.2 Perceived Disadvantages

The major public concern of energy resource recovery plants is the release of pollutants in stack emissions and their dispersal over large areas. Although the possibility is remote considering the projected levels of emissions, cumulative deposition of pollutants with time may have environmental effects. It should be noted that pollutant levels in atmospheric emissions will be substantially below Ontario Ministry of the Environment guidelines, air emissions will be continuously monitored, and ambient levels will be routinely checked at critical receptors and ground stations.

9.3 Net Environmental Effects Analysis

The criteria and approach to environmental effects analysis, as well as comparison of four site alternatives, are presented in Section 7. Mitigation plans are outlined in Section 8. Table 6 re-evaluates the comparison of sites with mitigation in place to determine whether any changes occur in environmental ranking result.

10.0 STUDIES CONNECTED WITH UNDERTAKING

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A. GRENVILLE DAVIS, Q.C.
(1916-1973)

August 4, 1987.

BY COURIER

The Honourable Jim Bradley,
Minister of the Environment,
15th Floor,
135 St. Clair Avenue West,
Toronto, Ontario.
M4V 1P5

Dear Sir:

Re: Petro-Sun International Inc./SNC Inc. Consortium
Energy from Waste Facility, Region of Peel

We wish to advise you that on July 6, 1987, we advised the Hearings Registrar, Office of Consolidated Hearings, that our client, Petro-Sun International Inc./SNC Inc. Consortium, would be seeking approval for an energy from waste facility to be located on Site 4 only. Our client had previously sought approval for a facility to be located either on Site 2 or Site 4. If you require further clarification, would you please advise us.

Yours truly,

DAVIS, WEBB, SCHULZE & TINSLEY,

RKW:ht

Ronald K. Webb, Q.C.

APPENDIX 3

PROPOSER'S REQUEST FOR DESIGNATION
UNDER EA ACT
COPY OF DESIGNATING REGULATION



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R.O.C. 144/87

Executive Council

I certify that the paper-writing hereunto annexed is a true copy of the Regulation under the Environmental Assessment Act, made by His Honour the Lieutenant Governor in Council on the 9th day of April, A.D. 1987.

Dated at Toronto this 9th day of April, A.D. 1987.

Suzanne Keweenan

Deputy Clerk, Executive Council



Ontario
Executive Council

Order in Council

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On the recommendation of the undersigned, the Lieutenant Governor, by and with the advice and concurrence of the Executive Council, orders that

the appended Regulation be under the Environmental Assessment
Act.

Recommended

Jim Bradley
Minister of the
Environment

Concurred

D. Franklin
Chairman

Approved and Ordered April 9, 1987
Date

P. G. Lepage
Lieutenant Governor

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Dated: April 9, 1987
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REGULATION MADE UNDER THE
ENVIRONMENTAL ASSESSMENT ACT

DESIGNATION - PETRO-SUN INTERNATIONAL INC.
AND SNC INC.

1. The enterprise or activity by Petro-Sun International Inc. and SNC Inc., or any corporation or person related to Petro-Sun International Inc. or SNC Inc. by ownership or contract, of establishing an energy from waste facility in The Regional Municipality of Peel that includes provision for providing energy to the Domtar Inc. packaging plant located at 7447 Bramalea Road in the City of Missisauga and including all related steam or electrical energy transformation or transmission facilities is defined as a major commercial or business enterprise or activity and is designated as an undertaking to which the Act applies.

DAVIS, WEBB, SCHULZE & TINSLEY

BARRISTERS & SOLICITORS

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A GRENVILLE DAVIS, Q.C.
(1916-1973)

January 8, 1987.

The Honourable Jim Bradley,
Minister of the Environment,
15th Floor,
135 St. Clair Avenue West,
Toronto, Ontario.
M4V 1P5

Dear Sir:

Re: A Proposed Energy from Waste Plant
in the Regional Municipality of Peel

We are the solicitors for Petro-Sun/SNC Consortium. Our client has put forward a proposal for an energy from waste plant to be located either on the east side or on the west side of Bramalea Road, south of Steeles Avenue, near the Domtar Plant and being either in the City of Brampton or in the City of Mississauga, in the Regional Municipality of Peel. Our client has prepared for submission, an environmental assessment document.

In as much as it is not clear that the proposal is subject to the provisions of the Environmental Assessment Act, we respectfully request that a regulation be made confirming that the proposal is subject to the provisions of the Environmental Assessment Act.

Mr. Roger Clarke of your Environmental Assessment Branch is familiar with this matter.

We set out below, for your consideration, a proposed draft for a regulation.

"Whereas Petro-Sun/SNC Consortium is a private sector proponent not otherwise subject to the Environmental Assessment Act;

And whereas the proposal by the Consortium to establish an energy from waste facility within the Region of Peel is not otherwise subject to the Environmental Assessment Act;

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And whereas it is considered to be appropriate that this private sector proposal should be made subject to review pursuant to the Environmental Assessment Act;

It is therefore Ordered that the proposal by Petro-Sun/SNC Consortium be made the subject of and be reviewed pursuant to the Environmental Assessment Act."

If we can supply further information or material, we would be pleased to do so at your convenience.

Yours truly,

DAVIS, WEBB, SCHULZE, TINSLEY,



Ronald K. Webb, Q.C.

RKW:ht

c.c. Mr. John Pappain
Mr. David Estrin

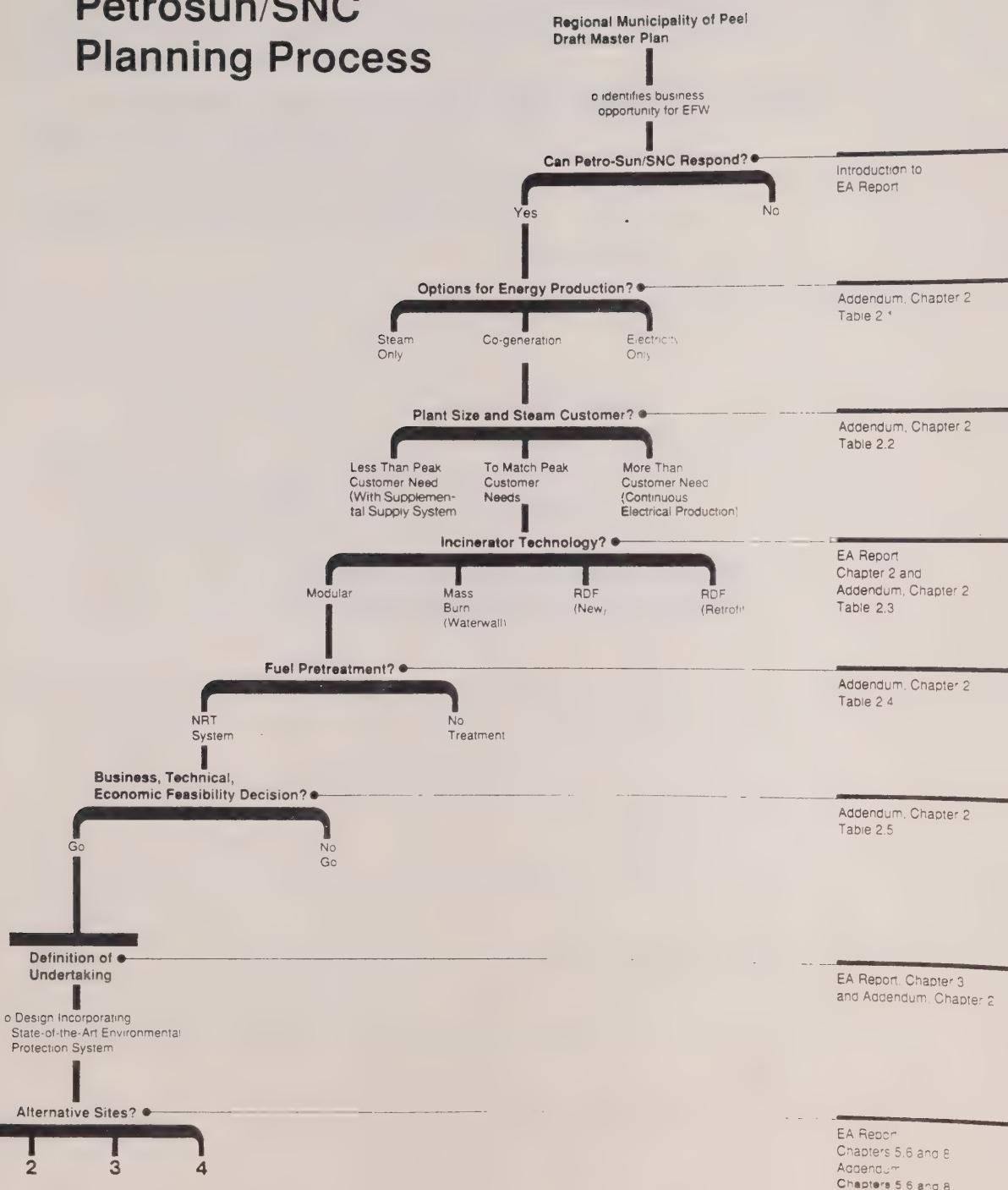
APPENDIX 4

FIGURE 1.1 FROM ADDENDUM TO THE EA
PETRO-SUN/SNC PLANNING PROCESS

FIGURE 1.1

Petrosun/SNC Planning Process

Reference to Discussion
in Report



APPENDIX 5

STATEMENT BY THE MINISTER OF THE ENVIRONMENT
ON THE APPLICATION OF THE EA ACT TO PRIVATE SECTOR
ENERGY-FROM-WASTE PROPOSALS



newsrelease / communiqué

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Ministry
of the
Environment

Ministère
de
l'Environnement

March 13, 1987

FOR FURTHER INFORMATION:
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Environmental Assessment
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Communications Branch

PRIVATE AND PUBLIC ENERGY FROM WASTE PROJECTS TO BE DESIGNATED UNDER ENVIRONMENTAL ASSESSMENT ACT

All public and private Energy From Waste (EFW) programs and waste incineration facilities that handle more than 100 tonnes per day will be subject to Ontario's Environmental Assessment Act (EAA), Environment Minister Jim Bradley announced today.

"Energy from waste facilities represent an alternative to both landfill disposal and conventional sources of energy, but concerns about health and environmental effects require comprehensive evaluation prior to environmental approval," Mr. Bradley said.

The Environmental Assessment Act requires environmental planning that evaluates alternatives to a proposal and offers the public an opportunity to participate in the planning and evaluation.

The ministry recognizes that the private sector faces certain constraints in meeting the requirements of the Environmental Assessment Act. In administering the Act for private sector EFW proposals, these limitations will be taken into consideration.

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Facilities burning less than 100 tonnes per day, burning only wood wastes or incinerators burning non-hazardous or municipal waste on the site where it is generated are exempt from the EAA. They would, however, require an approval under the Environmental Protection Act (EPA).

All public sector EFW facilities fall under the ministry's EAA and EPA. Previously, any private sector EFW project was exempt from the requirements of the EAA.

The EAA includes a broad definition of the environment and includes the social, cultural and economic conditions. The act requires that a comprehensive evaluation be undertaken of the advantages and disadvantages of any project, including the consideration of alternatives. Government agencies and the public participate in the planning and evaluation of the projects.

EFW facilities burn a variety of waste to produce energy in the form of steam or electricity. This form of waste management could significantly reduce the amount of garbage entering landfills. However, EFW facilities also have the potential to create and emit toxic chemicals, such as dioxin and furans, along with odors and problems with traffic. The EAA will address these community concerns.

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**MINISTER OF THE ENVIRONMENT
STATEMENT ON APPLICATION OF THE EA ACT TO
PRIVATE SECTOR ENERGY FROM WASTE PROPOSENTS**

ENVIRONMENTAL ASSESSMENT ACT

The Environmental Assessment Act is the most comprehensive piece of environmental legislation in Ontario. It is designed to ensure the proper weighting of environmental advantages and disadvantages of proposals, encompassing social, economic and cultural conditions as well as the natural environment.

The private sector faces certain constraints in meeting requirements of the EAA in the same manner as public sector proponents (e.g., they lack the power of expropriation). It is, therefore, desirable to clarify how the EAA requirements in their current form can be reasonably met by private sector proponents.

POLICY ON PRIVATE SECTOR EFW

The Government has designated major private sector EFW and waste incineration facilities under the EAA. The Act as currently administered requires that a reasonable range of alternatives be studied before an undertaking is selected. What is defined as reasonable is based on the inherent constraints of a given proponent's abilities vis-a-vis its planning process. This means that the Act can be applied in a consistent manner to private as well as public sector proposals.

PRIVATE SECTOR AND ENVIRONMENTAL ASSESSMENT ACT

The private sector can address the requirements of the Act.

a) Rationale

Private sector proponents must provide a rationale for their proposals, but such a rationale might legitimately include the opportunity to establish a profitable enterprise. Private sector proponents are entitled to take financial risks.

b) Consideration of Alternatives to the Undertaking

The Act is intended to ensure that reasonable alternatives to a given undertaking are considered. This encourages serious consideration and environmental evaluation of viable alternatives. But, proponents are entitled to determine what is reasonable for their planning process and to decide among equally acceptable alternatives. A rationale for why alternatives were or were not chosen, and description of the effects associated with the viable alternatives is necessary.

Example: Small municipalities possess more limited resources than larger ones and therefore are not normally required to consider as broad a range of waste management alternatives but only those that are reasonable based on the environmental evaluation.

c) Consideration of Alternative Sites

Private sector proponents will be expected to consider only those sites which are reasonable and reasonably available, given the nature of the proposed undertaking. In many cases, the siting alternatives of a given private sector proposal may be narrowed because of the location of a selected customer, sources of raw materials, availability of sites, or a required distribution system.

Example: Ontario Hydro considered only one site for its mobile PCB destruction facility because of the location of the material.

d) Consideration of Alternative Technologies

The Act encourages consideration of alternative technologies and methods for achieving a given undertaking. This is standard planning practice which is done by many private sector firms on a regular basis (i.e., good corporate planning). However, the final choice rests with the proponent and, in the absence of a markedly superior technology, is likely to be a choice among a range of equally acceptable alternatives. Again, a rationale for the choice of alternatives, and descriptions of the effects should be provided, as outlined by subsection 5(3) of the Act.

CONCLUSION

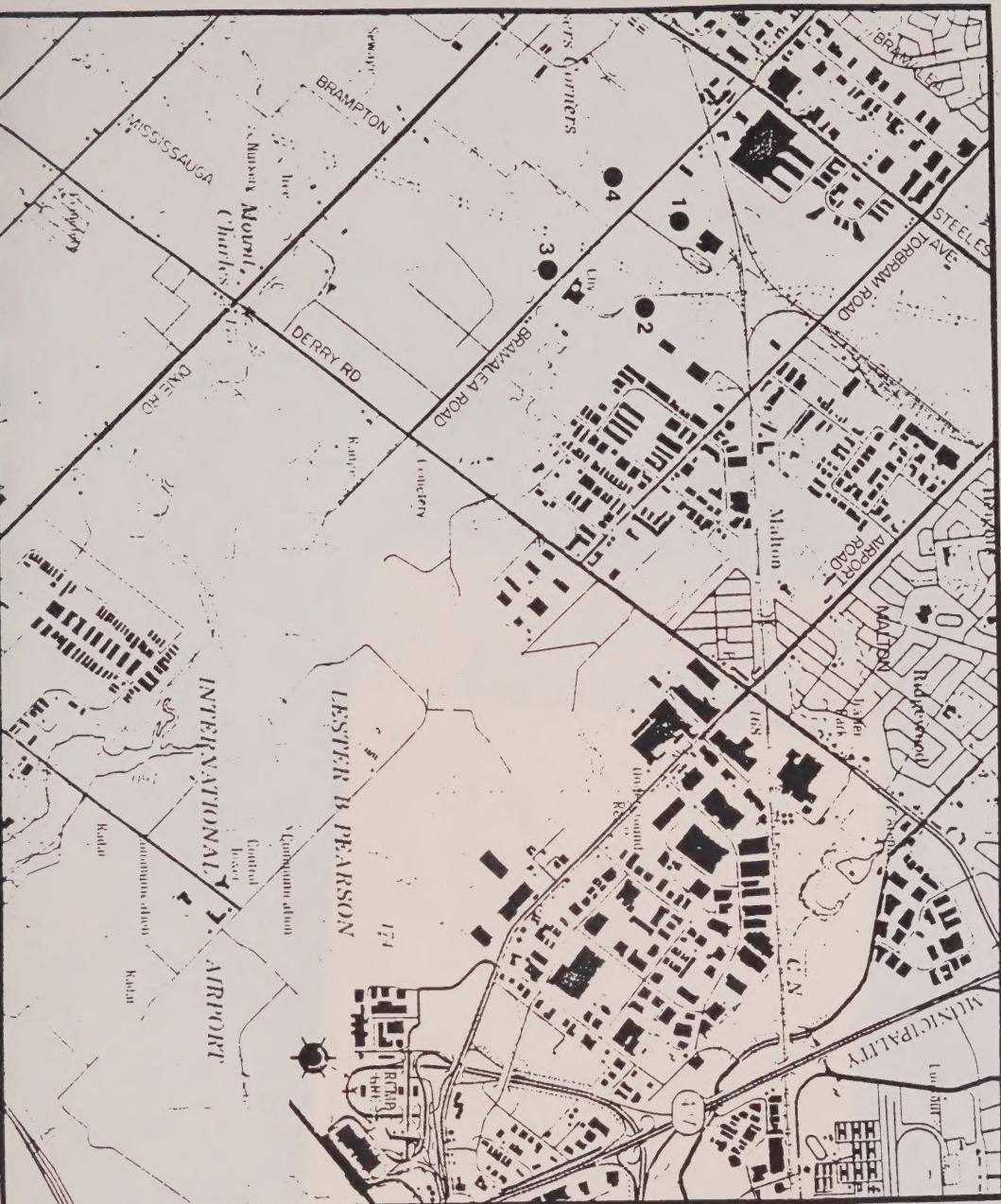
The EA Act is an essential means of safeguarding Ontario's environment. It is clear that the requirements of this Act can be met by private sector proponents in a reasonable and efficient manner. In many cases the assessment process may be similar to the type of planning already done in the waste management sector.

The Act requires a reasonable planning effort, taking into consideration the proponent's nature, aims, resources and capabilities. Provided a reasonable planning effort is made, the Ministry will support a document as meeting the requirements of the Act, whether the decision is made by the Minister or a hearing board.

APPENDIX 6

MAP INDICATING LOCATION OF THE PREFERRED SITE
FOR THE FACILITY (SITE 4)

FIGURE 4
Alternative Site
Locations (4 Sites)



LEGEND:

- 1 Site Locations

